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A COMPUTER BASED DECISION SUPPORT
SYSTEM (DSS) FOR DEVELOPING LOGISTIC
SUPPORT ANALYSIS (LSA) REQUIREMENTS AS
PART OF THE SYSTEM ENGINEERING PROCESS

THESIS

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A COMPUTER BASED DECISION SUPPORT SYSTEM (DSS)

FOR DEVELOPING LOGISTIC SUPPORT ANALYSIS (LSA)

REQUIREMENTS AS PART OF THE SYSTEM ENGINEERING PROCESS

THESIS

Presented to the Faculty of the School of Systems and Logistics

of the Air Force Institute of Technology

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In Partial Fulfillment of the

Requirements for the Degree of

Master of Science in Logistics Management

Michael G. Heffner, B.S., M.S.

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Preface

The purpose of this research effort was to develop concise guidelines for generating Logistic Support Analysis (LSA) requirements as an integral component of the system engineering process, and to document the guidelines in the form of a computer based Decision Support System (DSS). This effort is a spinoff of the research performed by Captain Paul Dunbar on using computer based decision support systems for tailoring LSA.

I thank all of the individuals who made this effort possible. I thank my advisor Lt Col Robert Materna. I am grateful for the patience, time, and knowledge given by Mr. Mike Bello, Mr. Ron Potter, Mr. Fred Dello-Stritto, and Mr. Travis Stewart. Final thanks must go to my wife, Joyce, for all her support and understanding while I worked on this effort.

<div align="right">Michael G. Heffner</div>

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Abstract

This thesis involves the development of a computer
based Decision Support System (DSS) to assist in selecting
the Logistic Support Analysis (LSA) tasks of Mil-Std-1388-1A
as an integral part of the system engineering process.

There are six main features to the DSS: (1) a general
overview of the DSS, LSA and system engineering; (2) a
review of the LSA tasks of Mil-Std-1388-1A and associated
application guidance; (3) the LSA task selection section;
(4) an LSA task selection review and update section; (5) an
LSA task selection print section; and, (6) an LSA Lessons
Learned review section. Within the DSS there are sections
which provide the user access to the Mil-Std-1388-1A LSA
task descriptions and specific LSA task application guidance
for each LSA task. The task application guidance provides
information relating to the LSA task's use, interfaces with
other LSA tasks and LSA Records, and interfaces with
specific engineering tasks (i.e., reliability,
maintainability, etc.). The DSS is programmed entirely in
dBase III PLUS, and requires dBase III PLUS in order to be
run. The DSS is structured in a top-down modular format for
easy modification and enhancement.

The DSS was developed using a four step approach. The
first step entailed a literature review of existing LSA and

system engineering literature to identify the pertinent LSA task and system engineering interfaces. The second step involved developing and programming an initial DSS. In the third step system engineering and logistics experts were identified to review the DSS and provide comments, recommendations, and expert knowledge. A Delphi technique was used to review the DSS, and the DSS was updated accordingly. In the fourth step, the experts reviewed the final DSS and completed a questionnaire documenting their final opinions regarding the DSS.

The expert review indicated that the DSS is more helpful in developing LSA requirements than current guidance documents and the DSS provides an increased understanding of the interrelationships between LSA and other engineering tasks.

A COMPUTER BASED DECISION SUPPORT SYSTEM (DSS) FOR DEVELOPING LOGISTIC SUPPORT ANALYSIS (LSA) REQUIREMENTS AS PART OF THE SYSTEM ENGINEERING PROCESS

I. Introduction

General Issue

Logistics Support Analysis (LSA) is the process used by the Air Force to ensure that weapon systems are designed and developed to "achieve the required readiness and sustainability" at an "affordable life cycle cost" (Department of the Air Force, 1986:1). Air Force Regulation (AFR) 800-8, Integrated Logistics Support (ILS) Program, formally defines LSA as follows.

> LSA is the selective application of scientific and engineering efforts undertaken during the acquisition process as part of the systems engineering process, to assist in: (a) causing support considerations to influence design; (b) defining support requirements that are related optimally to design and to each other; (c) acquiring the required support; (d) providing the required support during the operational phase at minimum cost. (Department of the Air Force, 1986:8)

AFR 800-8 describes LSA as part of the engineering process for system development. System engineering is a process structured to develop the optimum system for a required mission. The Defense System Management College's guide to ILS provides a concise definition of system engineering.

> Systems Engineering is, by definition, the application of scientific and engineering efforts to: (1) transform

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an operational need into a description of a system configuration which best satisfies the operational need according to measures of effectiveness: (2) integrate related technical parameters and assure compatibilit; of all physical, functional, and technical program interfaces in a manner which optimizes the total system definition and design; and (3) integrate the efforts of all engineering disciplines and specialties into the total engineering effort. (DSMC, 1986a:4-1 to 4-2)

LSA is a fundamental element of system engineering. Traditionally, the logistician, not the system engineer, was given the responsibility for implementing and managing LSA as part of the overall logistics program. The engineer had almost no direct responsibility to ensure that the LSA process was being implemented effectively, although "logistics and production costs account for approximately 90 percent of total life cycle cost, [and] virtually all major logistics supportability and producibility decisions are made by engineers (knowingly or unknowingly)" (McIlvaine, 1987:25). The key to effectively implementing LSA and ensuring that the weapon systems designed, developed, and procured are reliable, maintainable, and affordable is to effectively inte grate the LSA process within the system engineering process. To do this, engineers and logisticians need guidance that not only reflects LSA's role within the system engineering process, but also assists them in developing and implementing effective LSA programs. There are a number of efforts which provide greater emphasis on LSA's role in the system engineering process. The most notable of these are the R&M 2000 initiative which

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identifies system engineering and many system engineering tools (environmental stress screening, reliability growth, etc.) as integral to developing supportable systems (Department of the Air Force, 1988a), and the Air Force's Aeronautical Systems Division (ASD) Developmental Supportability Engineering (DSE) Guide which assigns the system engineer responsibility for over one half of the LSA tasks (Department of the Air Force, 1988b). However, these documents do not provide definitive guidance on actually developing and implementing LSA as an essential component of the system engineering process. This limits LSA's opportunity to "cause support to influence design" (Department of the Air Force, 1986:8).

Problem Statement

There are a number of formal guidance documents to assist the development and implementation of LSA programs: Mil-Std-1388-1A, Logistic Support Analysis (DOD, 1988); the AFLCP 800-17, Air Force Logistics Support Analysis Primer (Department of the Air Force, 1988c); the DSE Guide (Department of the Air Force, 1988b); and, AFLC/AFSC Pamphlet 800-34, Acquisition Logistics Management (Department of the Air Force, 1987). However, these guidance documents still treat LSA as virtually separate from the system engineering process. The guidance does not provide sufficient advice on determining what LSA tasks are required for a given acquisition program, why these LSA

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tasks are required, how these LSA tasks are performed, how these LSA tasks should be tailored to meet individual program requirements, what data inputs are required, and what the interfaces are between the LSA tasks and other engineering tasks (i.e, reliability, maintainability, human factors, etc.). Furthermore, this information, which is necessary to develop an LSA program that is integrated into the system engineering process, is scattered throughout the existing regulations, specifications, standards, and guides; all of which require considerable interpretation. System engineers and logisticians require concise guidance on how to develop and implement an LSA program as an integral part of the system engineering process and how to ensure that the goals of LSA are accomplished.

Research Objectives

To develop guidance for engineers and logisticians that will assist them in developing an effective LSA program that is integrated into the system engineering process the following objectives were pursued.

1. Determine what guidance is currently available to aid in developing an LSA program, and integrating it into the system engineering process.

2. Determine, based on the existing guidance for both LSA and system engineering, and the knowledge of Air Force experts on LSA and system engineering, guidelines for

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developing and implementing an LSA program within the system engineering process.

3. Document the guidelines developed in a computer based Decision Support System (DSS) for use by both experienced and inexperienced logisticians and system engineers.

Scope of Research

This research effort focuses on developing guidelines for developing and tailoring LSA program requirements that are an integral part of the system engineering process. Since each system development effort is unique due to program specific requirements, this research is not intended to necessarily develop guidance which will provide the absolute best, and final LSA program for any given development effort, but rather a good initial LSA program from which the final LSA program may be developed after all program considerations are taken into account.

Background

Military Standard (Mil-Std) 1388-1A, Logistics Support Analysis, implements the LSA process, identifies the specific tasks that comprise LSA, and provides guidance on developing LSA programs for system acquisitions (DOD, 1988). Additionally, there are several guidance documents available to assist logisticians and engineers in developing LSA, including; Air Force Logistics Command Pamphlet (AFLCP) 800-

17, Air Force Logistics Support Analysis Primer (Department of the Air Force, 1988c); AFLC/AFSC Pamphlet 800-34, Acquisition Logistics Management (Department of the Air Force, 1987); and, ASD's DSE Guide (Department of the Air Force, 1988b). The subject was also addressed by Captain Robert Pierce in his research to develop LSA tailoring worksheets (Pierce, 1985), and by Captain Paul Dunbar in his research to develop a DSS to tailor LSA (Dunbar, 1988). The Navy has developed a guidance document to aid its personnel in development, administration, and evaluation of LSA for its programs (Department of the Navy, 1985). The United States Marine Corps (USMC) uses two computer programs. One computer program tailors LSA and provides draft LSA Statement of Work (SOW) verbiage for contracts (USMC, 1988). The second generates LSA data requirements for contracts (Columbia Research Corporation, 1988).

Mil-Std-1388-1A and AFLCP 800-17 primarily treat LSA separate from the system engineering process. However, they provide very useful general guidance on applying LSA, and each LSA task.

The research performed by Captain Pierce attempted to provide guidelines on tailoring LSA by developing specific questions which tailored the Mil-Std-1388-1A tasks. Captain Dunbar's research continued this effort by developing a computer based DSS for tailoring the Mil-Std-1388-1A tasks interactively. Captain Pierce's and Captain Dunbar's

research provided guidance on tailoring LSA without considering the role of LSA within the system engineering process.

The Navy's LSA implementation guide provides guidelines on tailoring LSA, reviewing LSA programs, and managing the LSA output. The Navy's guide tailors LSA through a decision tree for LSA task selection. The guide only provides some general information regarding the interrelationship between LSA and system engineering.

The USMC's computer programs provide LSA SOW verbiage through a decision tree (USMC, 1988), and LSA data requirements through a data base which is searched and data elements are selected at will (Columbia Research Corporation, 1988). The computer programs do not provide any rationale for LSA task or data selection, nor any information regarding the usefulness of the selections.

This research was a follow-on effort to Captain Pierce's and, in particular, Captain Dunbar's research with an emphasis on treating LSA as an element of the system engineering process. .The goal of this research was to provide guidelines for developing and implementing LSA within the system engineering process. The guidance emphasizes tailoring LSA in relation to specific program and system engineering requirements, implementing and performing the selected LSA tasks, and understanding the usefulness of the selected LSA tasks. The guidance is documented in a

computer based DSS. The structure of the DSS developed by Captain Paul Dunbar was used a guide for developing the structure of the DSS developed under this research effort. However, the content of the DSS is derived from a variety of sources which are discussed in detail in the following chapters.

Decision Support Systems

An understanding of what DSSs are is required to understand the utility of documenting the guidelines resulting from this research effort in a DSS. A DSS is a tool which assists managers in making decisions; it does not replace the manager, nor does it make decisions for the manager (Keen, 1978:1-2). The DSS provides the information necessary to make an informed decision. The key points to remember about a DSS are that:

> 1. A DSS supports the manager in the decision making process.
>
> 2. A DSS increases the managers effectiveness not efficiency.
>
> 3. A DSS is suited for structured or semi-structured tasks. (Keen, 1-2:58)

The researcher believes that by structuring and documenting the guidelines developed in this effort in the form of a computer based DSS they will be beneficial to the system engineers and logisticians responsible for LSA. The DSS will provide system engineers and logisticians real time

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access to existing published guidelines and basic expert knowledge for developing LSA programs as an integral component of the system engineering process.

II. Literature Review

LSA Guidance and Background

Traditionally, Air Force weapon system research and development placed primary emphasis on weapon system performance, program schedule and procurement costs. System supportability was almost an afterthought. However, by the time a weapon system enters full scale development over 75 percent of the total life cycle cost of the weapon system has been predetermined by the design decisions made during the previous phases (Department of the Air Force, 1987:30-1). The best place to influence weapon system design for supportability is at system inception. Causing support considerations to influence system design is one of the primary goals of Integrated Logistics Support (ILS) (DOD, 1983:2-2). Department of Defense Directive (DODD) 5000.39, Acquisition and Management of Integrated Logistics Support for Systems and Equipment, establishes system supportability requirements equal to system performance, program schedule, and procurement cost (DOD, 1983:2). This commitment to supportability is emphasized in the Air Force's R&M 2000 Program (Department of the Air Force, 1988a). The R&M 2000 Program acknowledges that increased system supportability equals increased combat capability (Department of the Air Force, 1988a:3). The primary management tool available for ensuring system supportability is LSA. LSA is:

The selective application of scientific and engineering efforts undertaken during the acquisition process, as part of the systems engineering process, to assist in:

a. Causing support considerations to influence design.

b. Defining support requirements that are related optimally to design and to each other.

c. Acquiring the required support.

d. Providing the required support during the operational phase at minimum cost. (DOD, 1983:2-2)

Mil-Std-1388-1A, Logistics Support Analysis, establishes the guidelines and requirements for implementing an LSA program. Mil-Std-1388-1A presents LSA as a series of tasks which are tailored and selectively applied on acquisition programs, based on the program's individual needs.

Mil-Std-1388-1A divides the LSA tasks into five general areas, called LSA task sections. Task Section 100, Program Planning and Control, consists of those LSA tasks related to LSA program planning (DOD, 1988:5). Task Section 200, Mission and Support Systems Definition, consists of those tasks related to defining the system support objectives (DOD, 1988:5). Task Section 300, Preparation and Evaluation of Alternatives, consists of those LSA tasks related to developing the optimum support system (DOD, 1988:7). Task Section 400, Determination of Logistic Support Resource Requirements, consists of the LSA tasks related to determining the logistic support requirements for the system (DOD, 1988:8). Task Section 500, Supportability Assessment, consists of those LSA tasks that access the supportability

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of the system and identify deficiencies (DOD, 1988:8).
Within these five task sections are 15 LSA tasks, each of
which are made up of several LSA subtasks. Appendix A lists
all of the LSA task sections, tasks and subtasks.

As previously stated, Mil-Std-1388-1A requires that LSA
tasks be selectively applied and tailored to meet individual
program requirements (DOD, 1988:1). Herein lies one of the
major difficulties in developing and implementing an
effective LSA program; determining what tasks are required,
how they should be tailored to meet program requirements,
what input data are required, when the tasks should be
accomplished, and how to use the results the tasks yield.
Mil-Std-1388-1A provides detailed descriptions of each LSA
task section, task, subtask, their general purpose, a brief
description of the information required in order to perform
each task, expected output, and some general information
regarding the general applicability of each task during the
various phases of system development. However, this Mil-Std
does not provide specific information regarding how to
tailor individual tasks and subtasks, what other program
tasks (i.e., non-LSA tasks) are also required, what other
program tasks each LSA task subsequently effects, who should
perform each task, how each task should be used to meet
program requirements, or when each task should be
accomplished within any given acquisition phase.

Current Tailoring Aids

There are several LSA tailoring aides available to
assist in tailoring Military Standard 1388-1A. These
tailoring aides consist of the Air Force Logistics Support
Analysis Primer, AFLCP 808-17 (Department of the Air Force,
1988c), the Navy's LSA implementation guide (Department of
the Navy, 1985), tailoring worksheets developed by Captain
Robert Pierce (Pierce, 1985), a LSA tailoring computer
program developed by Captain Paul Dunbar (Dunbar, 1988), and
LSA SOW and LSA data requirements generating computer
programs used by the United States Marine Corps (USMC)
(USMC, 1988; Columbia Research Corporation, 1988).

The Air Force Logistics Support Analysis Primer, AFLCP
800-17, provides an overview of the LSA process, a brief
description of each task and its purpose, and a list of
references. AFLCP 800-17 provides general information
regarding when tasks should be initiated and accomplished,
what other acquisition program tasks are required as input,
what other program tasks require specific LSA task output as
their input, and, the general use of the LSA task data.

The Navy's LSA implementation guide was developed under
contract with KETRON, Inc., and serves several purposes,
including: detailed procedures for selecting Mil-Std-1388-1A
tasks and subtasks; assisting in selecting LSA data
requirements; and, providing guidance to Navy managers on
managing and reviewing LSA programs. The guide provides

detailed questions which form a decision tree. The answers to the questions generate LSA task and data requirements and lead the manager through the decision tree. The guide also provides some general information on the interrelationships between LSA and certain system engineering tasks. Finally, the guide provides information on LSA data documentation procedures, uses and dissemination of LSA data. The guide is specifically directed towards the development of ships and ships' equipment. However, the some of the information presented on LSA provides useful guidance on developing an LSA program integrated with the systems engineering.

Captain Pierce attempted to develop simple worksheets to aid in tailoring the LSA tasks of Mil-Std-1388-1A. Captain Pierce developed a set of questions, which when answered, provided an initial iteration of a tailored LSA program. Captain Pierce relied on existing guidance and three experts from the Air Force Acquisition Logistics Center (AFALC) at Wright-Patterson AFB OH to develop the tailoring questions (Pierce, 1985:19-20). The questions were documented in the form of tailoring worksheets. The questions were structured such that all LSA tasks and subtasks were initially included and through the answers provided to the tailoring questions tasks were eliminated from the LSA program (Pierce, 1985:21). The validity of the tailoring worksheets were tested through the use of a trial case. Three experts were given information regarding an

acquisition program and developed, by consensus, what they considered to be the best answers to the tailoring questions. The tailored LSA program generated from the answers to these questions formed a standard to which test subjects results would be compared. Eight test subjects were given the same information concerning the acquisition program and asked to answer the tailoring questions in order to develop a tailored LSA program (Pierce, 1985:22).

The results of Captain Pierce's research indicated that the tailoring questions developed resulted in guidance that was somewhat more understandable than the existing guidance (Pierce, 1985:26). However, the tailoring worksheets provided little information regarding the reasons for task inclusion, and the benefits and uses of the task. Instead the questions represented hard decision rules for task inclusion or exclusion. This procedure does did not allow for unique program requirements requiring atypical LSA task selections to be considered.

Following Captain Pierce's lead, in 1988 Captain Paul Dunbar developed a computer program as an aid for "developing a good 'first cut' of tailored Mil-Std-1388-1A requirements" (Dunbar, 1988:4). Captain Dunbar initially developed his computer program using Mil-Std-1388-1A, the thesis worked performed by Captain Pierce, and the AFALC LSA Lessons Learned databank (Dunbar, 1988:17). Captain Dunbar's computer program was developed around Captain

Pierce's tailoring questions (Dunbar, 1988:19).

Captain Dunbar's computer program had several requirements: (1) the program must be easy to use; (2) the program must include narratives on the LSA tasks and other pertinent information; (3) the program must include LSA Lessons Learned; and (4) the program must provide both a hard copy and computer file of all selected LSA tasks (Dunbar, 1988:18). Some key elements of Captain Dunbar's program include defining task precedent-antecedent relationships where applicable, including LSA Lessons Learned (a database of LSA history compiled by AFALC), using a programming format and language that allowed for easy update/revision and including the task application matrix from Mil-Std-1388-1A (Dunbar, 1988:19-22).

After developing an initial computer program, Captain Dunbar solicited the advice of three LSA experts who met as a group to review the initial program and determine required changes. Following this initial meeting, no further group meeting were possible. However, each of the experts was able to review the program separately and provide comments to Captain Dunbar for incorporation into the final computer program (Dunbar, 1988:24-25).

After completing his programming, Captain Dunbar met with each expert to review the final program, and answer a questionnaire. The results of Captain Dunbar's research indicate that the DSS (computer program) developed to tailor

the tasks of Mil-Std-1388-1A would be helpful to working level logisticians, and as training aid in AFALC's LSA course (Dunbar, 1988:47-48). All three experts solicited by Captain Dunbar indicated that the resulting computer program is useful (Dunbar, 1988:49). They also recommended that the program (DSS) be expanded to include: (1) more lessons learned; (2) the interrelationships between tasks and subtasks; and, (3) identification of those tasks which are performed by the government and those which are performed by the contractor (Dunbar, 1988:49). The experts consulted did not favor including firm decision rules in the computer program. The experts felt that the inclusion of such rules would result in "boiler plate" application of LSA tasks with the result being a LSA program that was not tailored to meet specific program requirements (Dunbar, 1988:48).

Based upon his findings, Captain Dunbar made the following recommendations for further LSA research:

1. Review the Army's research in LSA for possible inclusion into the computer program.

2. Verify that the computer program is usable and understandable by working level logisticians.

3. Identify high interest items within the program.

4. Provide the user of the program options to retrieve and review data files as required. (Dunbar, 1988:50-51).

Captain Dunbar's research and DSS (computer program) provide a good baseline for developing guidance for

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developing an LSA program as an integral part of the systems engineering process. The key results of Captain Dunbar's research include the structure of the computer program; the recommendations to include task inter-relationships (which the researcher feels should be expanded to include not only LSA task interrelationships, but also LSA/other system engineering task relationships); and the possible inclusion of the results of other on-going research efforts.

The USMC uses two computer programs: one tailors the LSA tasks of Mil-Std-1388-1A and generates draft LSA SOW input (USMC, 1988); the other, called CAMDES (for Computer Assisted Methodology for Data Element Selection) allows the user to select required LSA Reports and data item requirements of Mil-Std-1388-2A and generates a DD Form 1949-1 (Columbia Research Corporation, 1988). Mil-Std-1388-2A, DOD Requirements for a Logistics Support Analysis Record, defines the structure, format and content of the LSA data resulting from the performance of any of the LSA tasks of Mil-Std-1388-1A (DOD, 1986b:iii). The DD Form 1949-1 is the form used to identify the data elements required in the LSA reports (DOD, 1986b:18).

The SOW generating program asks the user a series of tailoring questions similar to both the Navy's and Captain Pierce's tailoring questions. Decision logic within the computer program automatically selects the LSA tasks and subtasks based on the users answers. Based on the LSA tasks

selected, the user is provided the appropriate SOW tasking statements which he may accept, modify, or reject.

CAMDES provides the user a data base from which to select various Mil-Std-1388-2A LSA records (LSARs), reports and data items and generates a DD Form 1949-1 for the selected items. CAMDES does not select LSA tasks or subtasks. The user must make sure the proper LSA task and subtasks are selected in order to ensure the data required to complete the LSA reports and data items are available. Furthermore, CAMDES does not provide any information regarding the LSA report and data items utility.

The System Engineering Process

The Defense System Management College's (DSMC's) System Engineering Management Guide provides a brief but complete overview of the system engineering process (DSMC: 1986b). As stated in the DSMC guide, system engineering is an iterative process consisting of: (1) functional analysis of input requirements; (2) synthesis of requirements; (3) evaluation of alternatives and trade-off decisions; and, (4) description of system elements (DSMC: 1986b, 5-2).

Functional analysis includes identifying and allocating system performance objectives, which are based on system mission requirements, to system subsystems and components. Synthesis of requirements determines how the performance objectives resulting from the functional analysis will be met. Various alternative solutions are developed based on

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various technical factors (reliability, maintainability, survivability, etc.). Evaluations of the alternatives and trade-offs among the various alternatives are performed. Each alternative's capability of meeting mission/performance objectives is balanced against the technical factors, cost and schedule to determine the optimum solution. This is an iterative process. It is initially performed at the system level and performed to progressively lower levels (subsystem, sub-subsystem, component) until the entire system is defined (DSMC, 1986b:5-1 to 5-8).

Thus, the system engineering process is a methodology which logically arrives at the optimum system for a given set of requirements. LSA is, in turn, an important component of system engineering, which ensures that system supportability is balanced with other design factors.

Current LSA and System Engineering Guidance

In 1988, Air Force System Command's Aeronautical Systems Division reaffirmed LSA's major role in the system engineering process and published the DSE guide to provide system engineers guidance in developing portions of the LSA program (Department of the Air Force: 1988a). This guidance provides a broad perspective of LSA's role in the systems engineering process and gives systems engineers specific responsibilities for nine of the fifteen major LSA tasks found in Mil-Std-1388-1A. Appendix A shows the lead organization, engineering (EN) or acquisition logistics

(AL), for each of the LSA tasks and subtasks. The guidance provides some information regarding the flow and interrelationships of LSA and other systems engineering tasks. The guidance provides information regarding the functional relationships required between both the government and contractor's engineering and logistics functional organizations (Department of the Air Force, 1988b:3).

LSA and System Engineering Data Sources

Information on the interrelationships between LSA and other system engineering were gleaned from a variety of sources. They include the following.

Benjamin Blanchard and Wolter Fabrycky's text on system engineering provides general information on the system engineering process and the interrelationship between reliability engineering tasks and LSA tasks (Blanchard and Fabrycky, 1981).

Benjamin Blanchard's text on logistics engineering provides general information on the LSA process and how it fits into the overall system development process (Blanchard, 1986).

James Jones' ILS handbook provides some general information regarding the specialty engineering functions, their individual tasks, and the LSA process. Jones discusses the specialty engineering functions of reliability, maintainability, system safety, and human

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factors engineering. Additionally, Jones discusses Repair

Level Analysis (RLA) and Reliability Centered Maintenance

(RCM); both of which are integral to the LSA process (Jones,

1987).

DSMC's ILS Guide provides detailed information

regarding LSA task and subtask requirements to complete the

LSARs and additional information regarding the interfaces

between LSA and RLA, RCM, and Failure Modes, Effects and

Criticality Analyses (FMECAs) (DSMC, 1986a).

The following Mil-Stds provide detailed information on

each task, purpose, input requirements, output requirements,

and applicability for their respective specialty areas:

Mil-Std-882B, System Safety Program Requirements (DOD,

1984c); Mil-Std-470A, Maintainability Program for Systems

and Equipment (DOD, 1987); Mil-Std-785B, Reliability Program

for Systems and Equipment Development and Production (DOD,

1986a); and, Mil-H-46855B, Human Engineering Requirements

for Military Systems, Equipment and Facilities (DOD, 1984b).

These standards, along with the texts written by Blanchard

and Fabrycky (Blanchard and Fabrycky, 1981), Blanchard

(Blanchard, 1986), and Jones (Jones, 1987) and the DSMC ILS

Guide (DSMC, 1986a) were used to develop the LSA task and

other system engineering task interrelationships in the DSS.

The following standards describe engineering analyses

that are required to perform certain LSA tasks: Mil-Std-

1629A, Procedures for Performing a Failure Mode Effects and

Criticality Analysis (DOD, 1984a); Mil-Std-965A, Parts
Control Program (DOD, 1985a); Mil-Std-1843, Reliability-
Centered Maintenance for Aircraft, Engines and Equipment
(DOD, 1985b); and, Mil-Std-1390, Levels of Repair (DOD,
1982). These standards provide additional information on
the relationships between the analyses prescribed by these
standards and the affected LSA tasks and subtasks.

Army ILS Tailoring Program

The Army is developing an expert system which will
develop ILS programs including milestone schedules, LSA
requirements, and general ILS program requirements. The
program is called Logistics Planning and Requirements
Simplification Systems (LOGPARS). LOGPARS is being
developed specifically for Army use. Therefore, some of the
nomenclature, program and data requirements are not directly
applicable to Air Force applications.

LOGPARS uses " 'if...then...else decision logic, rules
of thumb, heuristics, policy, cost estimating procedures,
schedule constraints, and format'" to select and tailor ILS
program requirements (Dunbar, 1988:14).

The researcher had an opportunity to review a
demonstration copy of the program at the Air Force's
Acquisition Logistics Division (ALD) at Wright-Patterson AFB
OH (AMC, 1989). Currently the LOGPARS program is only
applicable to Full Scale Development efforts. The
researcher was interested in examining those aspects of the

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LOGPARS relating to the selection of LSA tasks and subtasks. LOGPARS has two main elements relating to the tailoring of LSA: the Product Selection Advisor and the Statement of Work Advisor. The Product Selection Advisor allows the user to select LSA tasks, data item requirements and LSA Record (LSAR) requirements. The Product Selection Advisor requires the user to identify LSA tasks that have been accomplished during previous program acquisition phases. Once this has been accomplished LOGPARS asks a series of questions which tailors the LSA requirements in each of the Army's ILS element areas. At the end of the tailoring session the user is provided a list of selected LSA tasks, data item requirements, and LSAR requirements. The Statement of Work Advisor allows the user to generate LSA SOW requirements for contractual actions.

Conclusion

Based upon the literature reviewed it appears that there is no concise set of guidelines which treats LSA as part of the systems engineering process and provides guidance on developing and implementing an LSA as such, and that such guidance would be of great benefit to systems engineers and logisticians. There are numerous sources which partially address LSA and systems engineering's interrelationship. However, it requires considerable time and effort to review each of the sources, assimilate the information contained in them, and develop a clear

understanding of LSA's role within the system engineering process. Additionally, these sources do not capture a majority of the knowledge accumulated and maintained by government logisticians and engineers who have learned through experience the benefits and applicability of LSA to systems engineering. Therefore, it appears that the development of the guidelines proposed by this research effort is the next logical step in the development of useful, and effective LSA guidelines.

There are also a number of LSA computer programs available or under development such as LOGPARS, CAMDES, and the Marine Corp's SOW Tailoring Program. However, it appears that these programs may lead to "boiler plate" selection of the LSA tasks through either expert system schemes (LOGPARS) or binary logic (Marine Corps SOW computer program). These programs provide very little flexibility to develop an LSA program specifically tailored to the user's acquisition program, and very little information regarding the utility of the LSA tasks, LSA task interrelationships, or LSA task relationships with other program tasks.

The final conclusion is that development of the guidelines proposed by this research do not duplicate existing systems or ongoing efforts, but compliment these efforts. The proposed guidelines will assist users in developing tailored LSA programs while increasing their understanding of LSA and its role in system engineering.

III. Methodology

Overview

A four step approach was used to accomplish the research objectives and formulate the guidance for developing an LSA program as an integral part of the system engineering process. In the first step a literature review was performed to determine if sufficient need for the proposed DSS existed. The literature review indicated there was sufficient need for a DSS, and provided the data necessary to develop the DSS. The second step involved developing the initial DSS and programming the system in dBase III PLUS computer language. The third step required identifying system engineering and logistics experts to review the DSS, obtaining their comments, and documenting their expert knowledge. The results of the expert review were incorporated into the DSS, and the expert's opinions on the final DSS were obtained in the fourth step. This chapter explains the details of each step.

Step 1. Literature Review

Chapter two describes the literature review performed, and identifies the major sources of information on LSA, systems engineering and developing tailored LSA programs that were used to develop the DSS.

Briefly, the review of the literature indicates that Department of Defense (DOD) and Air Force regulations

recognize LSA as an integral part of the overall system engineering process. However, none of the current regulations or guidance documents provide complete guidelines on formulating and implementing LSA in this manner. The information required to develop an LSA program that is integrated within the system engineering process is scattered throughout the existing guidance. Furthermore, the literature review indicates that existing tailoring aids, including Captain Dunbar's DSS, LOGPARS and the Marine Corps' tailoring program, are useful but do not provide a complete picture of LSA's role within the system engineering process. Additionally, decision rule based systems like LOGPARS and the Marine Corps' program do not provide the user rationale for LSA task selection nor information regarding LSA task sequencing, required task input and output, or task benefits. The literature review indicates a need for this research and provides a great deal of useful information, albeit widely distributed throughout the existing guidance and regulations, regarding LSA, system engineering and their interrelationships.

Key sources of information reviewed include Captain Paul Dunbar's thesis and resulting DSS (Dunbar, 1988), Mil-Std-1388-1A (DOD, 1988), the DSE Guide (Department of the Air Force, 1988b), and AFLCP 800-17 (Department of the Air Force, 1988c). Additional sources of information include the DSMC system engineering guide (DSMC, 1986b), the DSMC

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ILS guide (DSMC, 1986a), and the Navy's LSA implementation procedures report (Department of the Navy, 1985).

The general structure, tailoring questions, and lesson's learned of Captain Dunbar's DSS were used as the primary basis for developing the LSA task selection portion of this DSS (Dunbar, 1988). The tailoring questions represent only one aspect of the DSS that assists the user in developing a tailored LSA program. The DSS must also provide the user sufficient information, in a logical format, on each LSA task and subtask, their sequencing, system engineering interfaces, their utility, and their applicability by acquisition phase in order for the user to make a logical decision on the applicability of each LSA task to their acquisition program.

The general task descriptions and task applicability matrix from Mil-Std-1388-1A are used to provide the user an "on-line" means of reviewing the Mil-Std-1388-1A LSA task descriptions, and general guidelines on task applicability by acquisition phase (DOD, 1988:4-51,98-102)..

The DSE Guide is used to provide the user information regarding general LSA task responsibilities within both the government's and contractor's organizations (Department of the Air Force, 1988b).

Information on the interrelationships between LSA and other system engineering tasks were gleaned from the following sources;

(1) Blanchard and Fabrycky's text on system engineering (Blanchard and Fabrycky, 1981).

(2) Blanchard's text on logistics engineering (Blanchard, 1986).

(3) Jones' ILS handbook (Jones, 1987).

(4) Mil-Std-882B, System Safety Program Requirements (DOD, 1984c).

(5) Mil-Std-470A, Maintainability Program for Systems and Equipment (DOD, 1987).

(6) Mil-Std-785B, Reliability Program for Systems and Equipment Development and Production (DOD, 1986a).

(7) Mil-H-46855B, Human Engineering Requirements for Military Systems, Equipment and Facilities (DOD, 1984b).

(8) Mil-Std-1629A, Procedures for Performing a Failure Mode Effects and Criticality Analysis (DOD, 1984a).

(9) Mil-Std-965A, Parts Control Program (DOD, 1985a).

(10) Mil-Std-1843, Reliability-Centered Maintenance for Aircraft, Engines and Equipment (DOD, 1985b).

(11) Mil-Std-1390, Levels of Repair (DOD, 1982).
The information found in these sources is incorporated throughout the LSA task application guidance to provide additional information regarding LSA and system engineering task interrelationships, task sequencing, task utility, and references for additional information. The application guidance is intended to provide the necessary additional information needed by system engineers and logisticians to

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select the appropriate LSA tasks, and provide references for additional information.

Step 2. Initial Guidance and DSS Development

Based on the literature reviewed, an initial version of the guidance was developed as a DSS, and the computer program written. The key characteristics of the DSS were determined to be as follows.

(1) The DSS must be easy to understand and use.

(2) The DSS must show the interrelationships between LSA tasks and other system engineering tasks.

(3) The DSS must identify and present LSA lessons learned and high interest items.

(4) The DSS must identify contractor performed tasks and government performed tasks.

(5) The DSS must present information regarding how tasks should be performed, when tasks should be performed, what input data is required, what the expected output data are, and should describe the usefulness of each task.

The DSS was programmed in dBase III PLUS based on the logic described by Captain Dunbar (Dunbar: 1988,18). dBase III PLUS is easy to use, versatile, generally available in government offices, and allows higher order computer operations to be performed easily (i.e, data base searches based on given conditions). Programming in dBase III PLUS is simple and allows the DSS to be modified or expanded easily. Several books on programming in dBase III PLUS that

the were very useful in developing the DSS are cited within the bibliography (Chou: 1987; Chou: 1986; Liskin: 1987).

There are several compilers available that will allow the DSS to be compiled and run independently (e.g., without dBase III PLUS). Ken Knecht discusses several compilers: Quicksilver, Clipper and Foxbase+ (Knecht, 1988). However, Knecht notes that these compilers either do not recognize all of dBase III PLUS's commands or execute some of dBase III PLUS's commands differently than intended (Knecht, 1988: 232-249). For this reason, the DSS was not compiled.

The requirement for the DSS to be understandable, easy to use and flexible led the researcher to develop the DSS program in a modular format. The DSS is structured into several modules and sub-modules which are discussed in greater detail in the next chapter. This structure allows the DSS to make maximum use of screen menus for ease of use and maximum flexibility. The modularity of the program allows users to access only the specific areas they are interested in. This allows the user the flexibility to access only the pertinent areas. Finally, the structure allows the DSS to be easily updated and expanded to include new information and capabilities.

The DSS was structured around six major modules. They include: (1) a general overview of the DSS, LSA, and system engineering; (2) the capability to review the tasks of Mil-Std-1388-1A and associated guidance; (3) LSA task tailoring

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for specific acquisition efforts; (4) the capability to review and update LSA tasks for the specific acquisition program; (5) the capability to list or print a copy of the selected LSA tasks; and, (6) the capability to review pertinent LSA Lessons Learned. Additionally, there are five sets of common modules accessible from the task review, task tailoring, and task update modules. These are: (1) specific LSA task tailoring questions; (2) general LSA task descriptions; (3) the LSA task descriptions from Mil-Std-1388-1A; (4) the DSE Guide; and, (5) the LSA task application guidance. The program database which stores the information regarding task selection is accessible from the task tailoring, task update, and print modules. Figure 1 provides an illustration of the structure of the DSS. In the computer program implementing the DSS, these modules are represented by computer programs whose structure and operation will be presented in the next chapter.

The general information module provides the user information on the DSS, LSA, system engineering, and basic LSA task selection guidance. This module is intended to provide some preliminary information before proceeding to other areas of the DSS.

The task review module allows the user to review any or all of the Mil-Std-1388-1A task descriptions, DSE guidance, and application guidance. This is accomplished through a series of menu screens which present the user a list of each

of the Mil-Std-1388-1A task sections, and tasks. The DSS, based on the user's selection, accesses the appropriate module and displays the information contained within it. This allows the users the opportunity to review the LSA tasks and associated guidance as a training session or refresher prior to continuing the DSS.
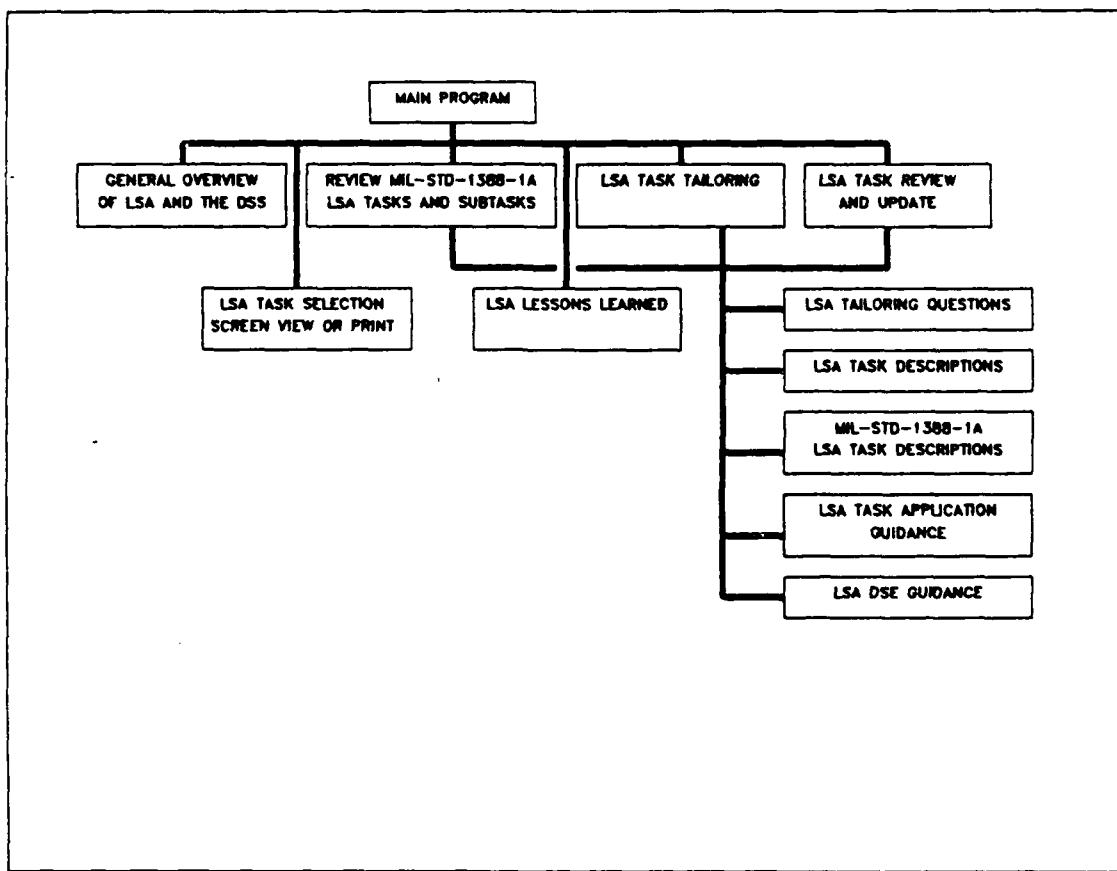
Figure 1. DSS Structure

The LSA task tailoring, and LSA task review and update modules of the DSS were developed using Captain Dunbar's LSA tailoring questions and general program structure. The program does not include any hard decision rules which would

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tend to drive the program towards "blanket" selection of LSA tasks. The LSA experts that reviewed Captain Dunbar's DSS were against decision logic for this very same reason (Dunbar, 1988:48). In place of decision logic and supplementing Captain Dunbar's tailoring questions are queues presented to the user indicating LSA task applicability by acquisition phase using the applicability matrix from Mil-Std-1388-1A (DOD, 1988). Options within the LSA task tailoring and LSA task review modules of the DSS allow the user to review the LSA task descriptions, DSE guidance, and application guidance. This allows the user to receive additional guidance before answering the task tailoring questions. The tailoring questions allow the user several options regarding each LSA task or subtask presented. The user may select or retain the task, not select or delete the task, or select that he is unsure about the task selection.

The print module provides the user either a hard copy or screen output listing of the selected LSA tasks. The LSA tasks can be searched and viewed as follows: (1) all possible LSA tasks and their current status (selected, not selected, or unsure); (2) only selected LSA tasks: and, (3) tasks the user is unsure of. This module provides the user the ability to obtain a listing of the selected LSA tasks for development of acquisition program documentation.

The LSA Lessons Learned module allows the user to access and review pertinent lessons learned regarding the actual use and application of LSA. This module provides the user additional information on LSA, and is easily modified to accept the most current LSA Lessons Learned reports.

The next chapter describes the computer programs, and their operation, used to implement these modules.

Step 3. Preliminary Expert Review and Update

Following development of the initial DSS several LSA and system engineering experts were identified to review the DSS and make comments concerning it adequacy, depth and content. The experts identified consisted of Mr. Michael Bello from ASD's system engineering office (ASD/ENST), Mr. Ronald Potter from ASD's acquisition logistics office (ASD/ALTB), and Mr. Fred Dello-Stritto and Mr. Travis Stewart from the LSA office of the Air Force's Acquisition Logistics Division's engineering deputy (ALD/ERL). Biographies of each of the experts are given in Appendix B. The choice of experts was based on each person's experience and knowledge, and the desire to have equal representation by both logistics and system engineering, and implementing and supporting commands.

Each of the experts separately reviewed the initial DSS. Initial interviews were conducted with each of the experts during the period 19-20 June 1989 to discuss the purpose of this research, intent of the DSS and the

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responsibilities of the expert members. The experts were informed that a Delphi method was being used to review and verify the DSS. Each expert was asked to independently review the DSS and provide comments to the researcher. The resulting comments were compiled and distributed to the experts for their review and concurrence. The final consensus of recommendations were incorporated into the DSS and the DSS received a final review by the experts. During the final review, each of the experts completed a questionnaire regarding the DSS.

Captain Dunbar noted that meeting with the experts as a group had a "synergistic" effect since it allowed experts to converse freely, exchange information, and develop new ideas (Dunbar: 1988,48). However, the demands for system engineering and logistics experts is great and there is limited opportunity to assemble them for group meetings. Instead, an independent review by the experts in a Delphi fashion was selected. This allowed the experts more time to perform an in depth review of the DSS.

The expert review was completed on 8 July 89. The final comments focused on three general areas: (1) the ease of use of the computer program; (2) the information presented the user, particularly the information presented in the application guidance portion of the DSS; and, (3) the general structure of the computer program.

The experts provided detailed comments regarding the "user friendliness" of the computer program which implements the DSS, and made specific recommendations on required changes. Each of the experts found several ways to "crash" the computer program which they felt should be corrected in the final DSS. The experts recommended that adding directory options, and program markers which tell the user where he is in the DSS would make the DSS more user friendly.

The experts considered the information presented within the application guidance helpful, but felt that more information regarding other related system engineering tasks (i.e., reliability, maintainability), and their relationships to the LSA tasks should be provided, along with more information regarding the utility and uses of each LSA task. The experts recommended that the user be provided more detailed information regarding both LSA and system engineering task flow within each of the acquisition phases.

The experts felt the addition of several computer program modifications would increase the utility of the DSS. These included options to review applicable LSA Lessons Learned from within the LSA task selection, and LSA task review and update modules. The experts felt that conditional branching should be added. The conditional branching would provide warning flags (messages) to the user that the LSA task just selected requires major input from

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LSA tasks not previously selected. The computer program would allow the user to review these not previously selected LSA tasks and either select them, or return and delete the LSA task which originally required the tasks as input. The experts felt that this type of logic avoided hard decision rules (automatic task selection), yet allows the user to check his task selection decision logic. The experts recommended adding an option which allows the user to copy the database file containing the users LSA task selections to a word processor compatible file, and an option to receive a printed output of the LSA task application guidance.

The experts comments regarding the ease of use of the DSS were incorporated along with the additional information requested. However, the experts' comments regarding the structure of the DSS were unable to be incorporated in this version of the DSS due to their scope. These comments have been included in the chapter discussing conclusions and recommendations.

Step 4. Final Expert Feedback

This step involved soliciting comments regarding the final DSS from each of the experts consulted. Each expert completed a feedback questionnaire to obtain their final opinion on the usefulness and utility of the DSS, and any further recommendations. Appendix C provides a copy of the questionnaire used to obtain the experts' feedback and

recommendations.   The results of this step are discussed in the final chapter of this thesis which covers conclusions and recommendations.

IV. Computer Program Structure, Operation, and Documentation

This chapter discusses the computer program and user's guide which documents and implements the DSS. The entire DSS is programmed in dBASE III PLUS. The DSS's overall structure is composed of a number of small computer programs, linked together to form the entire DSS. Each computer program has been programmed as a module that performs a single function in support of the entire DSS. The modular structure expedites programming and debugging, and allows program updates and modifications to be easily incorporated.

Types of Files Used

Before discussing the details of the computer program, it is important to note that several types of dBase III PLUS files are used in the computer program that implements the DSS. The computer program uses database files, text files, report form files, program files, and index files.

Database files store data in data records. A data record contains the data for a single item (e.g., name, address, and phone number of a person) (Chou, 1986:9). Each record is made up of data fields. A data field holds a single piece of data (e.g., a person's address) (Chou, 1986:9). Data fields can be set to accept only specific types of data. dBase III PLUS allows the data fields to be set to accept only alphanumeric, numeric, date (calendar),

or logical (true/false) data (Chou, 1986:18). Database files have filenames with ".DBF" extensions (e.g., TESTING.DBF) (Chou, 1986:21).

Text files store data in American Standard Code for Information Interchange (ASCII) format. Text files allow data to be shared among different computer programs, such as between dBase III Plus and a word processing program (Chou, 1986:20). Text files have filenames with ".TXT" extensions (e.g., LL0123.TXT) (Chou, 1986:22).

Report form files contain information prescribing the content and format used by dBase III PLUS to generate output reports of the data stored on database files (Chou, 1986:20). Report form files have filenames with ".FRM" extensions (e.g., PRINTIT.FRM) (Chou, 1986:21).

Program files store collections of database commands which are executed in a batch mode. Program files can be thought of as a list of instructions to be performed (Chou, 1986:18-19). Program files have filenames with ".PRG" extensions (e.g., MAIN.PRG) (Chou, 1986:21).

Index files store criteria by which database file data records may be sorted. Index files have ".NDX" extensions (Chou, 1986:19).

Database Files

This computer program uses a single database file to maintain a master record of all of the LSA tasks and subtasks. The master database file, named TASKS1.DBF, is

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composed of one hundred one (101) separate data records.
There is one data record for each LSA task and subtask, and
an additional record to store the program's acquisition
phase. TASKS1.DBF stores data in character data fields.
The character data fields store the LSA task number, LSA
task name, and whether the user is unsure about the
selection of the LSA task. The character data fields are
labeled TASK_NUM, NAME, and APPLICABLE, respectively. There
is an additional data field, NUMBER, which maintains the
correct task order for printing purposes. A data base index
file, TASKS1.NDX, sorts TASKS1.DBF on the data field NUMBER.
This allows new tasks to be added, as Mil-Std-1388-1A is
revised, more easily. Figure 2 provides a list of
TASKS1.DBF's data field labels, types and sizes.

Data Field	Type	Size
TASK_NUMBER	Character	10
NAME	Character	50
APPLICABLE	Character	15
NUMBER	Numerical	2

Figure 2. TASKS1.DBF Data Record Format

TASKS1.DBF has been initialized by setting APPLICABLE
to "NOT SELECTED" for all LSA tasks. This set up requires
the user to select all desired LSA subtasks. TASKS1.DBF
also contains a data record to store the program's

acquisition phase. The acquisition phase is recorded in
NAME data field for the data record with the data field
TASK_NUM equal to "PRG PHASE." The program's acquisition
phase is stored in the NAME data field as either "CE" for
Concept Exploration, "DV" for Demonstration/Validation,
"FSD" for Full Scale Development, or "PROD" for Production.

When the LSA task tailoring option of the DSS is
selected, TASKS1.DBF is copied to a working database file
named by the user. The working database file is used
throughout the DSS to record the status of the LSA tasks and
subtasks, and the program's acquisition phase. The data in
TASKS1.DBF are never manipulated by the DSS. The creation
of working copies of TASKS1.DBF that are named by the user
allows the user to store his work, edit his LSA task
selections, and maintain multiple LSA task selection
database files for multiple acquisition programs.

Text Files

The text files used in this program store the LSA
Lessons Learned. The LSA Lessons Learned were obtained in
text file format from Captain Dunbar's computer program.
Captain Dunbar was able to have the ALD (formerly AFALC)
office responsible for maintaining the official record of
LSA Lessons Learned download files from its computer system
to 5 1/4 inch floppy disks as text files (Dunbar, 1988:23-
24). Text files provide a convenient way to transfer LSA

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Lessons Learned from ALD's computer system to personnel computer based systems, such as this DSS.

Report Form Files

The DSS uses a report form file to provide the user a printed output of the status of the LSA tasks for his acquisition program. Report form file PRINTIT.FRM prints the task number, task name, and task selection status based upon search criteria specified by the user.

The report form files are accessed during the portion of the DSS which allows the user to either view on the screen or obtain a printed copy of the LSA tasks. This portion of the DSS will be addressed in detail later in this chapter during the discussion of the program files and their operation.

Memory Variables

The DSS makes extensive use of memory variables to store user input during the computer program's execution. Memory variables allow user input to be accepted, stored, and are used to control certain computer program operations. Memory variables are temporarily stored in the computer's memory while the program is being run (Liskin, 1987:215). All memory variable names have a "m" prefix (e.g., mCHOICE). The specific memory variables and their purpose will be discussed in more detail later in this chapter during the description of the program files in which they are used.

Program Files

This section of the chapter will discuss the program files which implement the DSS. This section will discuss overall structure of the DSS and each program file's purpose, structure, and operation.

DSS Program Structure. Before discussing each of the program files which make up the DSS, the overall structure of the DSS will be presented along with the general purpose of each program file and the naming convention used to designate the program files.

The central program file used in the DSS is MAIN.PRG. MAIN.PRG starts the DSS, establishes the operating system environment, and allows the user to access all the options available within the DSS or quit and exit the DSS. There are six main subprogram program files which may be called by MAIN.PRG. These subprograms represent the various functions available to the user. The GENERAL.PRG program file provides the user background information on the DSS, LSA, system engineering, and LSA task selection. The REVTASK.PRG program file allows the user to review the LSA task descriptions from Mil-Std-1388-1A and the application guidance developed for that task. The SELECT.PRG program file implements the LSA task tailoring portion of the DSS and allows the user to select the LSA tasks and subtasks of Mil-Std-1388-1A for his acquisition program. The REVUP.PRG program files allows the user to review and update the LSA

tasks selected during the execution of SELECT.PRG. The PRINTIT.PRG program file allows the user to obtain either a screen listing or printed copy of the status of the LSA tasks for his acquisition program. The LLEARN.PRG program file allows the user to review the LSA Lessons Learned. The general structure of the DSS is shown in Figure 3.
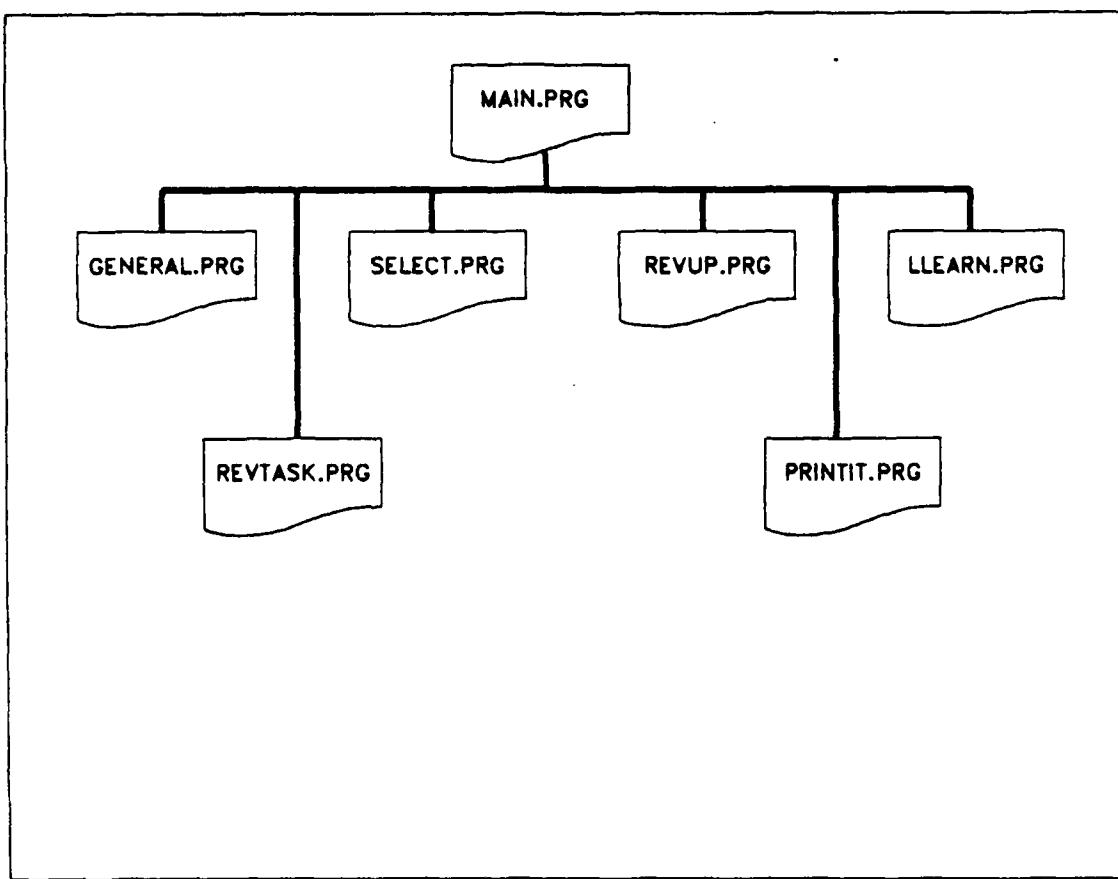
Figure 3. DSS Program Structure

Within each of the subprogram program files there are a number of other subprograms which are called and executed. These subprogram program files may be separated into six basic categories.

The first category consists of the program files with
the prefixes "LLEARN," "REVUP," and "REVTASK." These
program files are subprograms to the LLEARN.PRG, REVUP.PRG
and REVTASK.PRG program files, respectively. They perform
functions that support their parent programs. These program
files will be discussed in greater detail later on in this
chapter in the sections that present the LLEARN.PRG,
REVUP.PRG, and REVTASK.PRG program files.

The second category consists of program files with the
prefix "Q." These program files present the specific LSA
task tailoring questions during the execution of SELECT.PRG
and REVUP.PRG. These program files will be discussed in
detail later on in this chapter.

The third category consists of program files with the
prefix "T." These program files present brief descriptions
of each LSA task section, and task. There is one "T"
program file for each Mil-Std-1388-1A task section and task.
These subprograms are accessed by the REVTASK.PRG,
SELECT.PRG, and REVUP.PRG program files. These program
files will be discussed in detail later on in this chapter.

The fourth category of program files are the "M"
prefixed files. These program files present the user the
LSA task description from Mil-Std-1388-1A. There is one "M"
program file for each Mil-Std-1388-1A LSA subtask. These
program files will be discussed in detail later on in this
chapter.

The fifth category of program files are the "G" prefixed files. These program files contain the application guidance developed for each of the LSA tasks. These program files are accessed by REVTASK.PRG, SELECT.PRG and REVUP.PRG. There is one application guidance program file for each LSA task. These program files will be discussed in detail later on in this chapter.

The sixth category of program files are the "D" prefixed program files. These program files contain the DSE Guide input and output requirements for each of the LSA task, the organizational lead for each task. These program files will be discussed later on in this chapter.

MAIN.PRG. The MAIN.PRG program file starts the DSS, establishes the operating environment, and provides the user access to the various options available within the DSS. A complete listing of MAIN.PRG is given in Appendix D.

The program establishes the operating environment by turning the dBase III PLUS status screen off, turning the warning bell off, turning the error messages off, while setting the command confirmation on. This operating environment makes the dBase III PLUS operations being performed by the DSS transparent to the user. Turning the command confirmation on requires the user to press the <return> key after entering input at the various menu screens.

MAIN.PRG provides the user access to each of the various options of the DSS through a main menu screen. The menu provides the user the list of DSS options, including the option to quit and exit the DSS. Figure 4 provides a illustration of the main menu screen.

```
┌──────────────────────────────────────────────────┐
│        ┌───────────────────────────┐              │
│     ┌──┤    LSA DSS MAIN MENU       ├──────────┐   │
│     │  └───────────────────────────┘          │   │
│     │                                          │   │
│     │                                          │   │
│     │  [A] DECISION SUPPORT SYSTEM OVERVIEW     │   │
│     │                                          │   │
│     │  [B] REVIEW SPECIFIC MIL-STD-1388-1A TASKS│   │
│     │      AND APPLICATION GUIDANCE             │   │
│     │                                          │   │
│     │  [C] LSA TASK SELECTION DSS               │   │
│     │                                          │   │
│     │  [D] LSA TASK SELECTION REVIEW AND UPDATE │   │
│     │                                          │   │
│     │  [E] PRINT PREVIOUSLY SELECTED LSA TASKS  │   │
│     │                                          │   │
│     │  [F] REVIEW LESSONS LEARNED               │   │
│     │                                          │   │
│     │  [X] EXIT PROGRAM                         │   │
│     │                                          │   │
│     └──────────────────────────────────────────┘   │
│                                                     │
│  SELECT SECTION [A-F, X TO QUIT] AND PRESS ENTER    │
└──────────────────────────────────────────────────┘
```
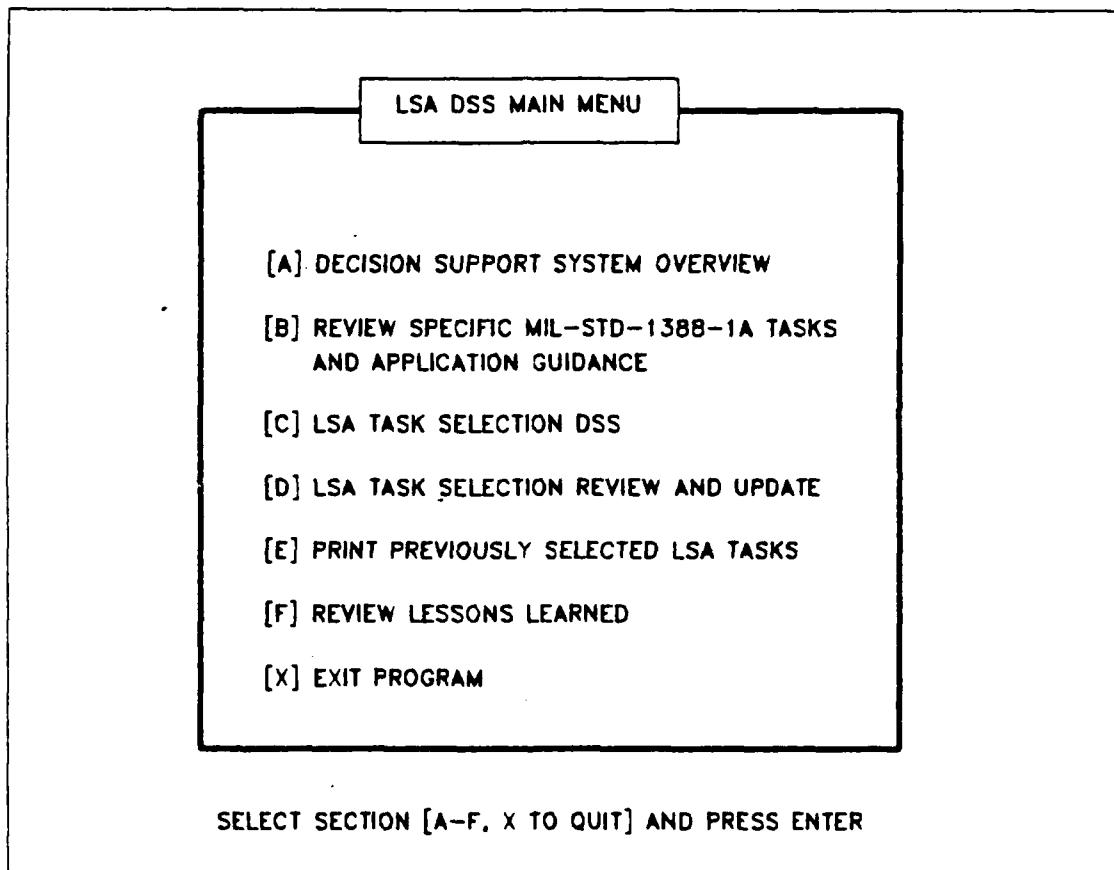
Figure 4.   MAIN.PRG Main Menu

The user selects the desired option by typing the letter found next to the option and pressing the <return> key. MAIN.PRG stores the user's selection in a memory variable called mCHOICE. MAIN.PRG uses the value for mCHOICE to run

the appropriate program file through a series of DO CASE commands.

The DO CASE command executes IF...THEN type logic. The DO CASE commands call the appropriate subprogram to be executed according to the value of mCHOICE. A continuous loop has been installed using a DO WHILE .T. statement. The loop continuously presents the main menu screen if the user either selects an option not found on the main menu (i.e., a wrong letter) or is returning to MAIN.PRG after exiting one of the DSS options. If the user chooses to exit the DSS, MAIN.PRG restores the dBase III PLUS operating environment ᵤack to it original state and exits the DSS.

GENERAL.PRG. The GENERAL.PRG program file presents the user a series of text screens which supply the user some general information regarding the DSS, LSA, System Engineering and LSA task selection. The user is presented the option at the end of each screen to either advance to the next screen, or quit and return to main menu (MAIN.PRG). A complete listing of the GENERAL.PRG program file is given in Appendix E.

REVTASK.PRG. The REVTASK.PRG program file allows the user to review the Mil-Std-1388-1A LSA task descriptions, DSE guidance, and task application guidance. REVTASK.PRG presents the user with a menu of the five LSA task sections, and an option to quit the task review and return to the main menu (MAIN.PRG). The user's selection is stored in the

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memory variable mCHOICER. A series of IF...ENDIF commands
performs the logic that selects the appropriate LSA task
section to be reviewed based on the value of mCHOICER.
REVTASK.PRG, according to the user's selection, calls the
appropriate task section program file (T100.PRG, T200.PRG,
T300.PRG, T400.PRG, or T500.PRG), followed by a "REVTASK"
program file which allows the user to review the LSA
individual tasks within the selected LSA task section. The
"REVTASK" program files are named REVTASK1.PRG through
REVTASK5.PRG for LSA task sections 100 through 500,
respectively.

Once the appropriate "REVTASK" program file has been
called, the user is presented with a menu of the various LSA
tasks ' ¬ch may be reviewed under the chosen LSA task
section, and an option to quit and return to the LSA task
section menu. The user's LSA task review choice is stored
in memory variable mTASC. A series of IF...ENDIF commands
are used to present the user with the appropriate task
description ("T" prefixed) program file, and a menu allowing
the user to review the Mil-Std-1388-1A task description ("M"
prefixed program file), DSE guidance ("D" prefixed program
file), or the individual task application guidance ("G"
prefixed program file). Figure 5 provides an illustration
of the structure and logic of REVTASK.PRG, and the "REVTASK"
program files. Appendix H provides a complete listing of
REVTASK.PRG, REVTASK1.PRG, REVTASK2.PRG, REVTASK3.PRG,
REVTASK4.PRG, and REVTASK5.PRG.
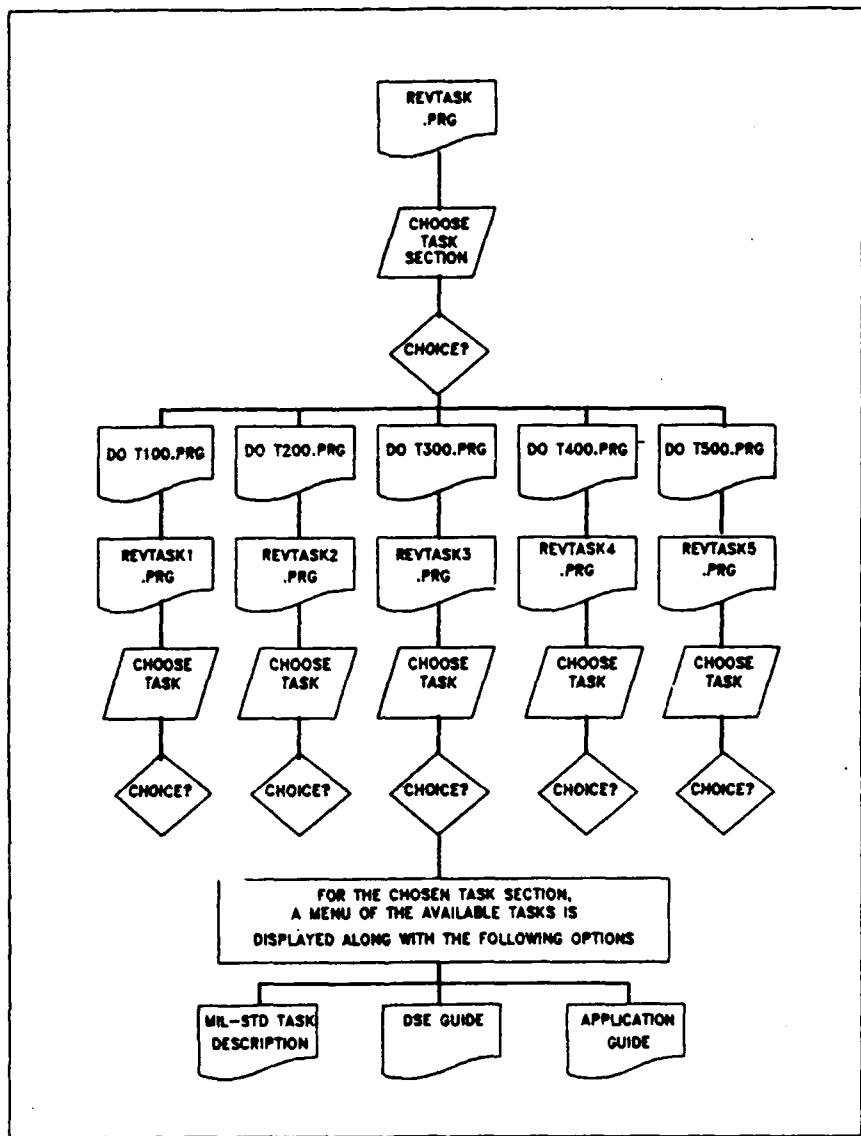
Figure 5. REVTASK.PRG and "REVTASK" Program Structure

SELECT.PRG. The SELECT.PRG program file is the LSA
task tailoring section of the DSS. During the execution of
SELECT.PRG the user is asked a series of questions designed
to guide the selection of the appropriate LSA tasks.
SELECT.PRG provides the user with a brief description of the

LSA task tailoring section he has selected. Next, SELECT.PRG generates a menu of the potential acquisition phases (Concept Exploration, Demonstration/Validation, Full Scale Development, or Production/Deployment), and an option to quit and return to the main menu (MAIN.PRG). The user chooses the applicable acquisition phase or quits SELECT.PRG. The selected acquisition phase is stored in memory variable mPHASE. Once the user has selected the appropriate acquisition phase, he is presented with a menu allowing him to retrieve a directory listing of existing program files asking him to provide a name for his current acquisition program. The name provided is used as the name of the database file onto which TASKS1.DBF is copied and the user's subsequent LSA task selections are stored. The directory feature of this program file help avoid using the same program file name twice. The name must be no longer than eight characters long and end with a ".DBF" extension. If the file name does not end with a ".DBF" extension dBASE III PLUS will not recognize it as a database file. SELECT.PRG stores the user's input in the memory variable mNAME.

SELECT.PRG copies the master database file, TASKS1.DBF, to a working database file called mNAME. This is the only time that the master database file, TASKS1.DBF, is used. SELECT.PRG and every other DSS option requiring the use of a database file will use the database file mNAME.

The selected acquisition phase (mPHASE) is then stored in the data field NAME of the data record with TASK_NUM equal to "PRG PHASE" in the database file mNAME. The acquisition phase is used throughout SELECT.PRG to provide the LSA task applicability matrix from Mil-Std-1388-1A.

SELECT.PRG guides the user through each of the LSA task sections, tasks, and subtasks in sequence. SELECT.PRG calls the task description subprogram for each of the LSA task sections (T100.PRG, T200.PRG, T300.PRG, T400.PRG and T500.PRG) at the beginning the task tailoring for that LSA task section. SELECT.PRG also calls the task description subprogram for each of the fifteen LSA tasks (T101.PRG through T501.PRG) prior to presenting the user the specific LSA task tailoring questions for that LSA task. For each LSA task, SELECT.PRG calls in sequence each of the LSA task tailoring question subprograms (the "Q" prefixed program files). The user uses the tailoring questions to select/not select each of the LSA subtasks for each LSA task. Built into each of the tailoring question programs is the LSA task applicability matrix from Mil-Std-1388-1A which displays the LSA subtask applicability according the acquisition phase (mPHASE), and a task selection note. The task selection note presents the user an on screen message stating whether the task is already not selected, selected, or the user is unsure of the task. While SELECT.PRG is executing this message will read for every LSA task and subtask: "THIS TASK

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HAS NOT BE PREVIOUSLY SELECTED." Along with the tailoring question, SELECT.PRG calls subprogram MENU.PRG which presents a menu which that gives the user a series of choices: (1) select the subtask; (2) do not select the subtask; (3) unsure about selection of the subtask; (4) review Mil-Std-1388-1A task description for the task ("M" prefixed program file) for that LSA task; (5) review the application guidance ("G" prefixed program file); (6) review the DSE guidance ("D" prefixed program file) for the task; or (7) quit this section and return to the main menu (MAIN.PRG). Figure 6 provides an illustration of the task tailoring question (Q101.PRG) and menu (MENU.PRG) generated for LSA task 101.

If the user selects the LSA subtask SELECT.PRG marks the data field APPLICABLE "SELECTED" in the data record for the appropriate TASK_NUM. If the user chooses not to select the LSA subtask SELECT.PRG marks the data field APPLICABLE "NOT SELECTED." If the user is unsure about the LSA subtask SELECT.PRG marks the data field APPLICABLE "UNSURE." If the user chooses to review either, the Mil-Std-1388-1A LSA task description, DSE guidance, or LSA task application guidance, SELECT.PRG calls the appropriate "M", "D", or "G" prefixed subprogram to be executed.

After reviewing the guidance a DO WHILE loop within SELECT.PRG for each tailoring question re-executes the tailoring question and selection menu program files until the user makes a subtask selection choice.

```
        TASK 101 - DEVELOPMENT OF AN EARLY LSA STRATEGY


        Has an LSA strategy been developed and the required LSA
        tasks and subtasks been identified? Including: (1) time
        phasing for task initiation/completion; (2) relationship of
        task and task output data to systems engineering and other
        ILS programs; and, (3) Government and contractor
        responsibilities?


        NOTE:  This task is normally accomplished by the Government
        during the planning phase, prior to release of an RFP.


        Task 101 is generally app'icable to this phase.  Task is
        selectively applicable to equipment level acquisitions


        THIS TASK HAS NOT BEEN PREVIOUSLY SELECTED


        ┌─────────────────────────────────────────────────────┐
        │ [Y] SELECT/RETAIN TASK; [N] DO NOT SELECT/DELETE TASK; │
        │ [U] UNSURE; [D] MIL-STD-1388-1A; [E] APPLICATION GUIDANCE │
        │ [F] DSE GUIDANCE; [Q] QUIT; ENTER CHOICE AND PRESS RETURN │
        └─────────────────────────────────────────────────────┘
```

Figure 6.   Task Tailoring Question Screen

Figure 7 provides an illustration of the structure of
SELECT.PRG for the LSA task 101.2.1.

Once the user makes a subtask selection choice
SELECT.PRG proceeds to the next LSA subtask, LSA task, LSA
task section and so on until all LSA task sections, LSA
tasks, and LSA subtasks have been reviewed and a selection
decision made. Upon completion of the selection process,
all of the user's LSA task and subtask selection decisions
are saved in the database file mNAME and the user is

returned to the main menu (MAIN.PRG). A complete listing of
SELECT.PRG is provided in Appendix G.
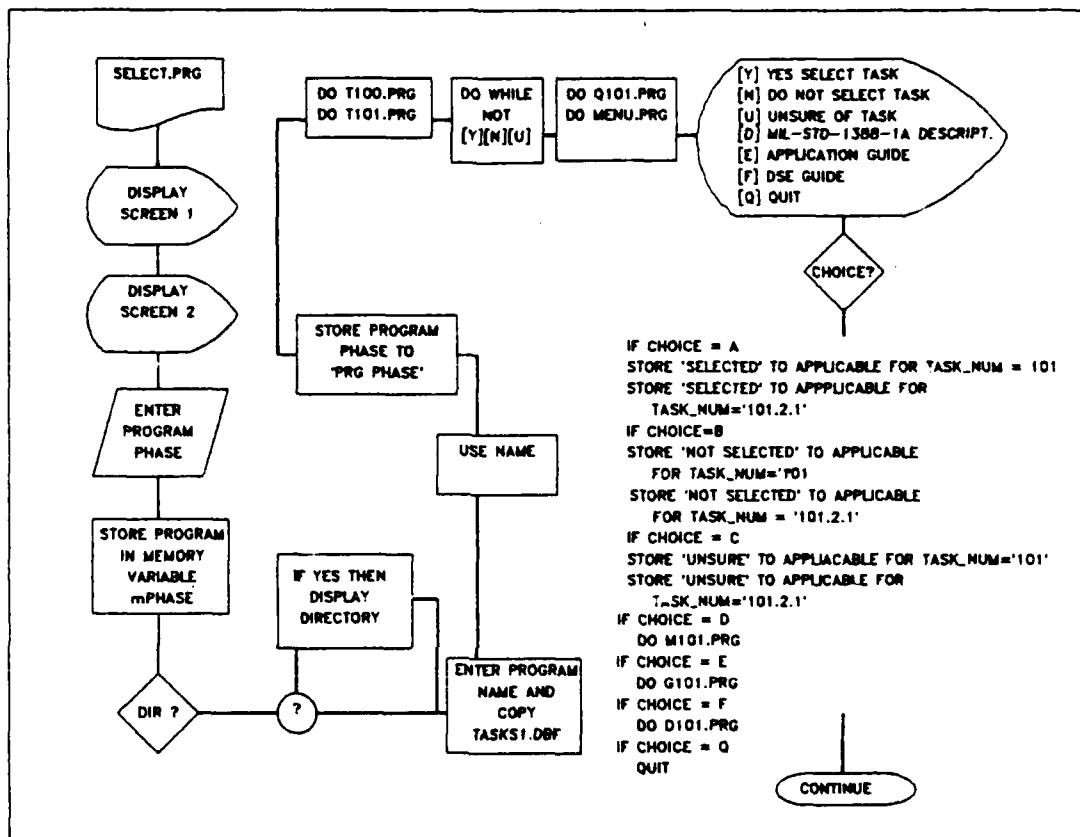
Figure 7. Task Tailoring Logic

REVUP.PRG. The REVUP.PRG program file allows the user
to review and update the LSA task and subtask selections
completed in SELECT.PRG. This option is selected from the
main menu (MAIN.PRG) of the DSS. MAIN.PRG calls REVUP.PRG
to be executed. REVUP.PRG calls a eries of program files
that generate menus for each of the LSA task sections
(REVUP1.PRG through REVUP5.PRG) and LSA tasks (REVUP101.PRG

through REVUP501.PRG) within each task section so the user
can review only the tasks he wants to review. Figure 8
provides an illustration of the structure and subprograms
called by REVUP.PRG.
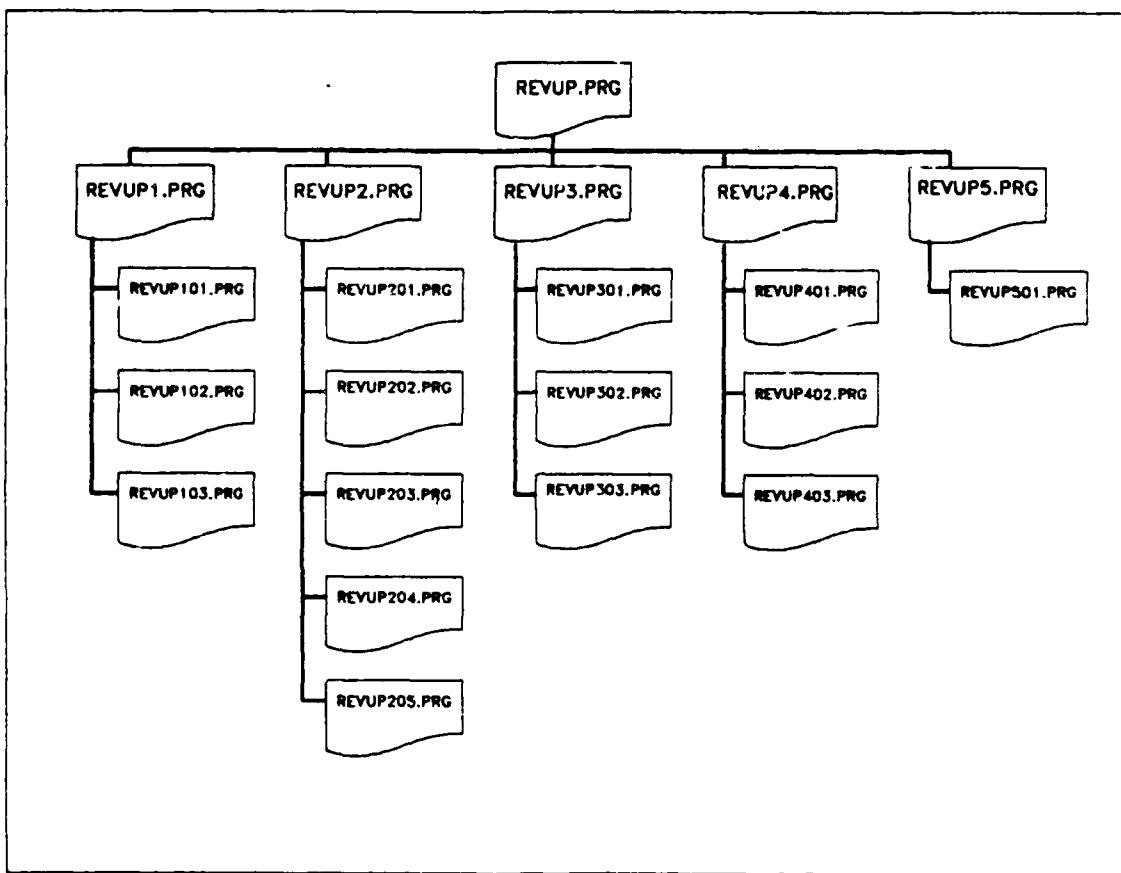
Figure 8. REVUP.PRG Structure

REVUP.PRG provides the user an option to retrieve a
directory of acquisition program database files available
for review and asks the user for the name of the acquisition
program database file he wishes to review. The user must
enter the name exactly as it was assigned during execution

of the task tailoring section of the DSS (SELECT.PRG). The
user's entry is stored in memory variable mNAME. Again, the
user's entry must have the ".DBF" extension in order for
dBase III PLUS to recognize it as a database file.
REVUP.PRG recalls the database file mNAME and reads the
acquisition phase from the data field NAME for the data
record with TASK_NUM equal to "PRG PHASE" in memory variable
mPHASE.

Once REVUP.PRG has recalled the appropriate database
file and acquisition phase, it presents the user a menu of
each of the LSA task sections, and an option to quit and
return to the main menu (MAIN.PRG). The user enters his
choice, which is stored in the memory variable, mCHOICER.
REVUP.PRG calls the appropriate subprogram through a series
of IF...ENDIF commands: REVUP1.PRG, REVUP2.PRG, REVUP3.PRG,
REVUP4.PRG, or REVUP5.PRG to review LSA task sections 100,
200, 300, 400 or 500, respectively. Based on the LSA task
section selected, and appropriate "REVUP" subprogram is
executed (e.g., REVUP1.PRG is executed to review LSA task
100). The user is presented with a menu consisting of the
LSA tasks within the chosen LSA task section. The user
enters his choice for the LSA task to be reviewed from the
LSA task selection menu, or quit to return to the LSA task
section menu of REVUP.PRG. The user's choice is stored in
the memory variable mTASC. A series of IF...ENDIF commands
then selects another "REVUP" subprogram according to the LSA

task to be reviewed. There is one "REVUP" program for each LSA task. They are named REVUP101.PRG through REVUP501.PRG. For example, REVUP301.PRG allows the user to review the subtasks for LSA task 301. Once the "REVUP" program is called for the desired LSA task the user is presented with the same task description, and task tailoring questions and options presented to him under SELECT.PRG, the initial task tailoring option. However, in this option the user will see whether he has previously selected, not selected or is unsure of the LSA subtask according to the messages queued by the task tailoring question subprogram ("Q" prefixed subprogram for that LSA task). The program structure at the individual task tailoring level is identical to the structure of SELECT.PRG, except that the user only reviews the subtasks for one LSA task at a time before returning to the LSA task menu for the previously selected task section (REVUP1.PRG through REVUP5.PRG accordingly).

Once the user exits REVUP.PRG all of his changes are saved on the database file mNAME, and the user returns to the DSS main menu (MAIN.PRG). A listing of REVUP.PRG, REVUP1.PRG and REVUP101.PRG is provided in Appendix H to give an example of the programming logic used throughout this section.

PRINTIT.PRG. Under the task review and print option of the DSS the user may get either a screen listing or printed copy of the LSA tasks and subtasks he has selected for his

program. When the user selects this option, MAIN.PRG calls
subprogram PRINTIT.PRG to be executed.

PRINTIT.PRG asks the user for the name of the database
file on which the LSA task selections are stored. The user
also has the option to retrieve a directory of available
acquisition program database files. The user enters the
name assigned during execution of the task tailoring section
of the DSS (SELECT.PRG). The user's entry is stored in
memory variable mNAME. The user's entry must have the
".DBF" extension in order for dBase III PLUS to recognize it
as a database file. PRINTIT.PRG recalls the database file
and presents the user a menu of the various options
available under this portion of the DSS. The menu allows
the user to: (1) review all LSA tasks and their status; (2)
review only the selected LSA tasks; (3) review only those
LSA tasks the user is unsure of; or (4) quit and return to
the main menu (MAIN.PRG). The user's choice is stored in
the memory variable mCHOICE, and a series of IF...ENDIF
commands executes the appropriate option. At the start of
any of the LSA review options the user is asked if he wants
the output sent to the printer. The user's selection is
stored in memory variable mWHAT. An IF...ELSE...ENDIF
command uses the value of mWHAT to send the output to either
the screen or printer. IF the user selects to send his
output to the printer PRINTIT.PRG sets PRINT ON, else the
program sets PRINT OFF and DEVICE TO SCREEN to ensure the

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output is sent to the screen. PRINTIT.PRG then executes the IF...ENDIF command according to the user's search conditions (all tasks, only selected tasks, only unsure of tasks). Within each IF...ENDIF there is an IF...ELSE...ENDIF command that is executed according to whether the user wants a screen listing or printed copy of the output. If the user previously chose to obtain a printed copy then the IF command performs a REPORT FORM command to access the PRINTIT.FRM report form file and generate a printed output. The content of the report generated is according to the user's search condition (mCHOICE). If the user chose to obtain a screen listing of the LSA tasks then a series of dBase III PLUS commands are executed to provide a screen listing identical in format and content to the report form files, except that only one screen of information is generated at a time. Figure 9 provides an illustration of the structure and logic of PRINTIT.PRG. A complete listing of PRINTIT.PRG is given in Appendix I.

LLEARN.PRG. The option of the DSS which allows the user to review pertinent LSA Lessons Learned from the LSA Lesson's Learned text files is executed by the LLEARN.PRG subprogram. LLEARN.PRG is executed by the appropriate IF...ENDIF command within MAIN.PRG.

LLEARN.PRG presents the user information regarding the LSA Lessons Learned and instructions to place the floppy diskette with the LSA Lessons Learned text files into the

computer's "A" disk drive. LLEARN.PRG then initiates the
subprograms which actually allow the user to review any or
all the LSA Lessons Learned by executing LLSCRN1.PRG.
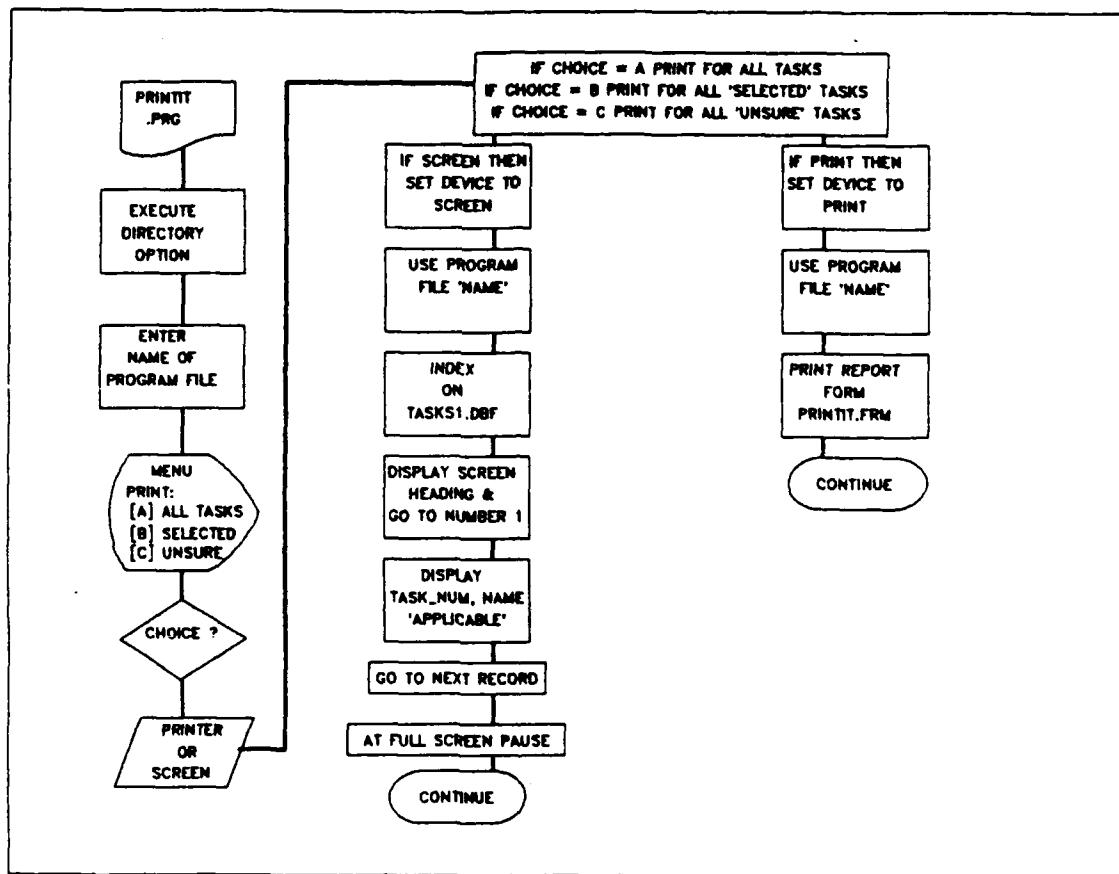
Figure 9.   PRINTIT.PRG Structure

LLSCRN1.PRG is the first of several subprograms which
present the user a menu of several LSA Lessons Learned and a
menu of options.   The user may chose to page up, page down,
review a LSA Lesson Learned, or quit and exit to the main
menu (MAIN.PRG).   The user enter's his selection and presses
the <enter> key.   A DO WHILE .T. LOOP prevents inappropriate

entries from attempting to be executed. If the user chooses
to review a LSA Lesson Learned he is prompted to enter the
number of the applicable LSA Lesson Learned from the menu
provided. The user's choice is stored in memory variable
mLNUM and a series of IF...ENDIF statements causes the
applicable LSA Lesson Learned text file from the LSA Lesson
Learned diskette to be displayed on the screen. Once the
user has finished reviewing the LSA Lesson Learned, the LSA
Lesson Learned menu is regenerated, and the DSS is ready for
the user's next selection. If the user chooses to page up a
message prompts the user that there are no previous menu's
and that he should make another selection. If the user
chooses to page down then LLSCRN1.PRG calls the next
subprogram, LLSCRN2.PRG, to be executed. Figure 10 provides
an illustration of the menu generated by LLSCRN1.PRG.

LLSCRN2.PRG through LLSCRN7.PRG are identical in
structure and function to LLSCRN1.PRG. They simply present
the next series of LSA Lessons Learned which may be
reviewed. There are two minor differences between
LLSCRN1.PRG and LLSCRN2.PRG through LLSCRN7.PRG. First,
LLSCRN2.PRG through LLSCRN7.PRG allow the user to page up to
the previous screen. Paging up simply executes the previous
"LLSCRN" program file. Second, since LLSCRN7.PRG is the
last menu of LSA Lessons Learned available, choosing the
page down option simply displays the message: "THERE ARE NO
MORE LESSONS LEARNED (PRESS ENTER)." When the user presses

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the <enter> key, the LLSCRN7.PRG menu screen is regenerated and ready for the user's next choice. Figure 11 provides an illustration of the structure and logic used by LLEARN.PRG, and LLSCRN1.PRG through LLSCRN7.PRG.

LESSONS LEARNED (I) LSA APPLICATION

(1) REPAIR LEVEL ANALYSIS (0458)
(2) TIMELY HARDNESS CRITICAL REQUIREMENTS (1132)
(3) LOGISTICS SUPPORT ANALYSIS/LOGISTICS SUPPORT ANALYSIS RECORD (LSA/LSAR) (1158)
(4) GOVERNMENT SUBMITTAL OF LOGISTICS SUPPORT ANALYSIS RECORD (LSA) DATA RECORD A TO CONTRACTORS PRIOR TO FULL SCALE DEVELOPMENT (FSD) CONTRACT AWARD (1308)
(5) LOGISTIC SUPPORT ANALYSIS (LSA) CONTRACTUAL PROVISIONS (1373)
(6) LSA REVIEWS (1442)
(7) REQUEST FOR PROPOSAL REQUIREMENTS (1493)

[A] PAGE UP; [B] PAGE DOWN; [C] REVIEW A LESSON; [Q] RETURN TO MAIN MENU: ENTER CHOICE AND PRESS RETURN

Figure 10.   LSA Lessons Learned Menu

This program structure allows the user to page up and down through the various menu's presenting the LSA Lessons Learned and to review the LSA Lessons Learned for as long as the user desires.   A complete listing of LLEARN.PRG, and LLSCRN1.PRG through LLSCRN2.PRG is provided in Appendix J.
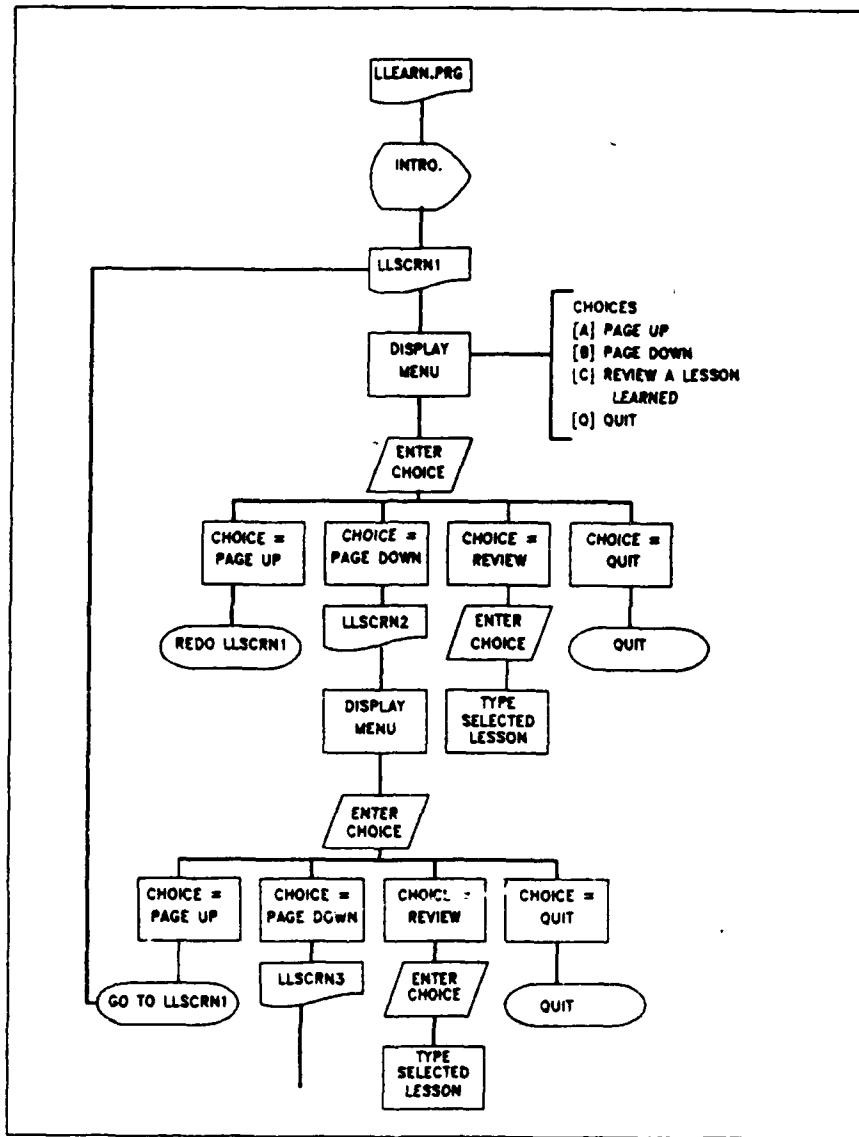
Figure 11. Lessons Learned Option Program Structure

Tailoring Question Program Files. The tailoring
question program files, the "Q" prefixed program files,
generate the specific LSA task tailoring questions of the
DSS, the LSA task applicability matrix from Mil-Std-1388-1A,
and the task selection messages. Generally, there is one
tailoring question program file, except where LSA subtasks

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are linked for each LSA subtask. In the case where the LSA subtasks are linked, one tailoring question program file generates an LSA tailoring question directed at tailoring several LSA subtasks.

The task applicability matrix of Mil-Std-1388-1A has been programmed into each of the LSA task tailoring question program files for each LSA subtask. The programming logic uses the program acquisition phase to queue up messages regarding each of the LSA subtask's applicability in that program phase. The program's acquisition phase, stored in the memory variable mPHASE, is used to present the appropriate task applicability message through a series of IF...ENDIF statements.

Similarly, the tailoring question displays either one of following task selection messages: (1) "THIS TASK HAS BEEN PREVIOUSLY SELECTED"; (2) "THIS TASK HAS NOT BEEN PREVIOUSLY SELECTED"; or, (3) "YOU ARE UNSURE OF THIS TASK." The task tailoring program file reads the APPLICABLE data field for the subtask in question and displays the appropriate message through a series of IF...ENDIF commands. Figure 12 provides an illustration of the general logic and structure of the task tailoring question program files.

The tailoring question program files are called and executed during the execution of either the LSA task selection (SELECT.PRG) or LSA task tailoring review and update (REVUP.PRG) portions of the DSS. Appendix K provides

a complete tailoring question program for LSA task 303.2.2.
Appendix L provides a complete listing of all the task
tailoring questions.
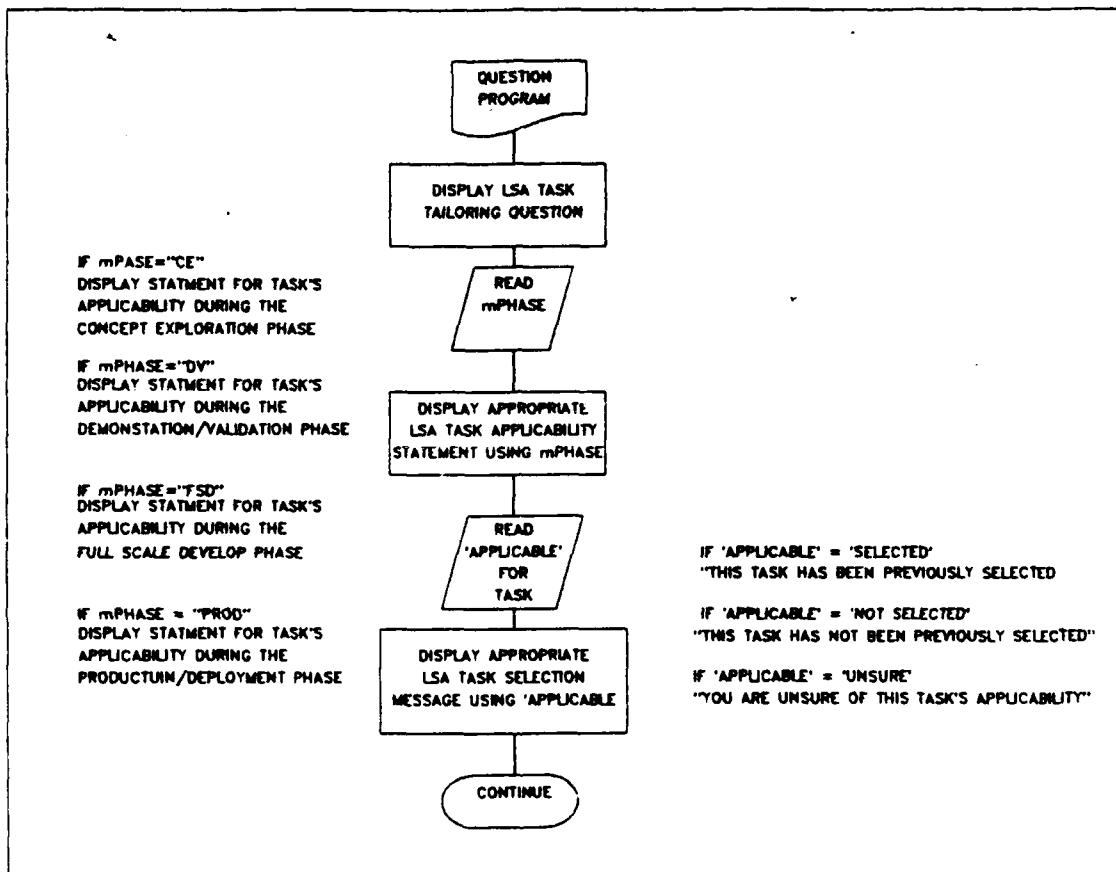
Figure 12.   LSA Task Tailoring Question Structure

Task Description Program Files.   The task description
program files, the "T" prefixed program files, simply
provide a text description of each of the LSA task sections,
and tasks.   These program files may be called and executed
by either the LSA task review (REVTASK.PRG), LSA task
tailoring (SELECT.PRG), or LSA task tailoring review and

update (REVUP.PRG) portions of the DSS. A complete listing of the task description program files is given in Appendix N.

Mil-Std-1388-1A LSA Task Description Program Files. The Mil-Std-1388-1A LSA task description program files, the "M" prefixed program files, provide the Mil-Std-1388-1A LSA task descriptions. These program files may be called and executed by either the LSA task review (REVTASK.PRG), LSA task tailoring (SELECT.PRG), or LSA task tailoring review and update (REVUP.PRG) portions of the DSS. A sample of the Mil-Std-1388-1A LSA task description program files is given in Appendix N.

LSA Task Application Guidance Program Files. The LSA task application guidance program files, the "G" prefixed program files, provide the user specific guidance regarding the use, inputs required, outputs expected and execution of each LSA task with respect to the systems engineering process.

Development of the LSA task application guidance program files is one of the key aspects of this research. The program files provide the user the information required to make decisions regarding the tailoring of the LSA tasks and subtasks for his acquisition program. The LSA task application guidance program files may be called and executed by either the LSA task review (REVTASK.PRG), LSA task tailoring (SELECT.PRG), or LSA task tailoring review

and update (REVUP.PRG) portions of the DSS. The program structure of these application guidance programs is identical to the structure of the Mil-Std-1388-1A LSA task description programs. A complete listing of the LSA task application guidance is given in Appendix O.

DSE Guide Program Files. The "D" prefixed program files provide a listing of the DSE Guide input and output descriptions and the lead organization for each LSA task. These program files may be called and executed by either the LSA task review (REVTASK.PRG), LSA task tailoring (SELECT.PRG), or LSA task tailoring review and update (REVUP.PRG) portions of the DSS. The program structure of these programs is identical to the structure of the Mil-Std-1388-1A LSA task description programs.

MENU.PRG Program File. The MENU.PRG program file is called during the execution of the LSA task tailoring (SELECT.PRG), and LSA task tailoring review and update (REVUP.PRG) portions of the DSS. MENU.PRG generates a menu of user options which allow the user to either select a LSA subtask, not select a LSA subtask, mark the LSA subtask as "UNSURE", review the Mil-Std-1388-1A LSA task application guidance, DSE guidance, or LSA task application guidance for the LSA subtask in question. Figure 6 provided an illustration of the menu generated by MENU.PRG. Appendix P provides a listing of MENU.PRG.

DSS Program Support Documentation

The support documentation for this DSS is provided in the form of a README.TXT file with the DSS computer program. The user may either read the support documentation by typing "README" at the MS-DOS prompt. This executes a batch file which causes the support documentation to be reviewed one screen at a time. The user may also obtain a printed copy of the support documentation by typing "PRINT README.TXT" at the MS-DOS prompt.

The support documentation was developed using Data Item Description (DID) DI-M-30422, Users Manual (Information Systems), as a guide (DOD: 1987). The first part of the support documentation provides some general information on the DSS, how to use it, how it operates, what its limitations are, and what the computer system requirements are. The second part of the support documentation provides instructions to the user on how to make copies of the program, install it on a computer, run the program and where to provide comments.

Appendix Q provides a complete copy of the support documentation for the DSS.

V. FINDINGS AND RECOMMENDATIONS

This chapter presents the findings of this research effort, a summary of the experts' responses to the feedback questionnaire, and recommendations for further research and continued development of this DSS.

Researcher's Findings

The DSS developed under this research effort provides a better understanding of the role LSA plays within the system engineering process than the myriad of guides, specifications, and handbooks currently available; each of which only presents a small part of the required information. The DSS provides useful information on LSA, system engineering and begins to fully define their interrelationships. The DSS will be most helpful to lesser experienced engineers and logisticians as both a training device and tool for use when developing LSA programs.

The DSS expands the work of Captain Dunbar, but is by no means complete. The complexity of the weapon system development process, and the logistics and system engineering efforts within it, requires continuing research to provide acquisition personnel the tools required to perform more effectively. To meet this need, the DSS can incorporate the results of further research in the areas of system engineering and logistics.

Feedback Questionnaire Responses

The feedback questionnaire given to the four experts who reviewed the DSS intended to measure the usefulness of the DSS, the completeness of the DSS, and obtain recommendations for further research. A copy of the questionnaire given to the experts is in Appendix C.

The first question was designed to measure whether the DSS is useful in presenting LSA as an integral part of the system engineering process. The experts agreed that the DSS is useful in this manner. However, two of the four experts commented on the need for both more information on both LSA and specialty engineering interfaces (i.e., reliability, safety, etc.) and the actual performance of each LSA task following selection.

The second question was designed to determine the usefulness of the DSS as an LSA task selection aid. The experts agreed that the DSS is very useful in aiding in the LSA task selection process. One expert felt that more information on the use and performance of the LSA tasks should be included.

The third question was designed to determine the overall usefulness of the DSS compared to existing guidance. The experts agree that the DSS is more useful than the existing guidance. One expert commented that the DSS gives the user access to a "breadth of information and application guidance relating to LSA."

The fourth question was designed to identify who would benefit from the use of this DSS. The experts felt that a wide variety of users would benefit from the DSS; including acquisition program office personnel, tne Deputy Program Manager for Logistics (DPML), and inexperienced engineers and logisticians.

The fifth question was designed to obtain the experts recommendations for use of this DSS. The experts felt that the DSS is useful as both a training device and a tool for use by acquisition personnel responsible for LSA and system engineering.

The sixth question was designed to determine to determine the adequacy and content of the DSS in the application of LSA, selection of LSA tasks, and the LSA and system engineering interrelationships. The experts felt that the DSS still requires the following information:

(1) A matrix that shows the LSA task flow and interrelationships down to the subtask level, and integrated with the applicable specialty engineering tasks.

(2) Integration of the LSA Lessons Learned with their applicable LSA tasks and subtasks.

(3) Reference to LSA and system engineering regulatory requirements (i.e., AFR 800-36).

(4) Additional information regarding why each LSA task and subtask is important, how the tasks and subtasks are performed, the source data required for each task and

subtask, and how and by whom the source data is developed.

The seventh question was designed to measure whether the DSS is compatible with existing guidelines. Three of the experts felt that the DSS is compatible. The fourth expert felt that the DSS is compatible except for one exception: Mil-Std-1388-1A is a DOD standard that assumes the government is writing the SOW while the DSE is an ASD guide that reflects current ASD acquisition initiatives which may not necessarily be entirely applicable to all DOD agencies.

The eighth question was designed to obtain the experts final recommendations for changes to this DSS. The following recommended improvements were made.

(1) Add the ability to page up and down throughout the DSS guidance sections.

(2) Further refine the LSA task application guidance to address additional specialty engineering interfaces, task performance methods, specific task uses, and source data development requirements.

(3) Integration of the LSA Lessons Learned into the LSA task selection, and review sections of the DSS to allow the user to review applicable lessons learned for each task at the specific task's tailoring screen.

(4) Development and integration LSA task and subtask flow into the DSS in the form of conditional branching logic to preclude selection of those LSA tasks or subtasks which

require, as major sources of input, LSA tasks or subtasks that were not previously selected.

(5)   Addition of modules which summarize the relationship of each LSA task and subtask the LSA Records (LSAR) and reports.

(6)   Addition of graphic representations of the LSA and specialty engineering task flows and interrelationships.

The ninth question was designed to determine if this DSS is superceded by other tailoring products.   Three of the experts were aware of the Army's LOGPARS project and concluded that although LOGPARS is similar to this DSS, the two programs are not redundant.

The tenth question was designed to obtain the experts recommendations for further research in the areas of LSA and system engineering.   Two of the experts recommended additional research be performed on further integration of the total logistics and system engineering work effort, not just LSA, to include selection of supportability performance requirements, and logistics in the System Engineering Master Schedule (SEMS) process to ensure supportability requirements are fully encompassed in the design effort.

Researcher's Recommendations

The researcher's recommendations revolve around two general areas; recommendations for continued development of the DSS resulting from this effort, and recommendations regarding further research in the areas of LSA and system

engineering. The researcher's recommendations are as follows.

(1) Expand the DSS to provide LSA Record, LSA Report and associated data item requirements from Mil-Std-1388-2A.

(2) Expand the DSS to incorporate associated system engineering tasks selection guidance to allow the user to select required system engineering tasks for reliability, maintainability, system safety, human factors, survivability, etc.

(3) Develop and validate LSA task flow down to the subtask level by acquisition phase. Incorporate these task flow relationships into the DSS in the form of conditional branching logic.

(4) Develop LSA task and subtask flow requirements within each acquisition phase. Identify when each LSA task and subtask should be initiated and completed (i.e., by Critical Design review). Develop criteria for task completion and how each task's results should contribute to decisions made at each milestone within each acquisition phase.

Appendix A: LSA Tasks

LSA Task   Subtask (OPR)

TASK SECTION 100 - PROGRAM PLANNING & CONTROL

101 - Development of an Early Logistic Support Analysis (AL)

         101.2.2   Cost Estimate
         101.2.3   Updates

102 - Logistic Support Analysis Plan (AL)

         102.2.1   LSA Plan
         102.2.2   Updates

103 - Program and Design Reviews (EN)

         103.2.1   Establish Review Procedures
         103.2.2   Design Reviews
         103.2.3   Program Reviews
         103.2.4   LSA Review

TASK SECTION 200 - MISSION & SUPPORT SYSTEM DEFINITION

201 - Use Study (EN)

         201.2.1   Supportability Factors
         201.2.2   Quantitative Factors
         201.2.3   Field Visits
         201.2.4   Use Study Reports and Updates

202 - Mission Hardware, Software and Support System
     Standardization (AL)

         202.2.1   Supportability Constraints
         202.2.2   Supportability Characteristics
         202.2.3   Recommended Approaches
         202.2.4   Risks

LSA Task	Subtask (OPR)

203 - Comparative Analysis (EN)

203.2.1	Identify Comparative Systems
203.2.2	Baseline Comparison System
203.2.3	Comparative System Characteristics
203.2.4	Qualitative Supportability Problems
203.2.5	Supportability, Cost, and Readiness Drivers
203.2.6	Unique System Drivers
203.2.7	Updates
203.2.8	Risks and Assumptions

204 - Technological Opportunities (EN)

204.2.1	Recommended Design Objectives
204.2.2	Updates
204.2.3	Risks

205 - Supportability and Supportability Related Design Factors (EN)

205.2.1	Supportability Characteristics
205.2.2	Sensitivity Analysis
205.2.3	Identify Proprietary Data
205.2.4	Supportability Objectives and Associated Risks
205.2.5	Specification Requirements
205.2.6	NATO Constraints
205.2.7	Supportability Goals and Thresholds

TASK SECTION 300 - PREPARATION AND EVALUATION OF ALTERNATIVES

301 - Functional Requirements (EN)

301.2.1	Functional Requirements
301.2.2	Unique Functional Requirements
301.2.3	Risks
301.2.4	Operation and Maintenance Tasks
301.2.5	Design Alternatives
301.2.6	Updates

LSA Task   Subtask (OPR)

302 – Support System Alternatives (EN)

              302.2.1   Alternative Support Concept
              302.2.2   Support Concept Updates
              302.2.3   Alternative Support Plans
              302.2.4   Support Plan Updates
              302.2.5   Risks

303 – Evaluation of Alternatives and Tradeoffs (EN)

              303.2.1   Tradeoff Criteria
              303.2.2   Support System Tradeoffs
              303.2.3   System Tradeoffs
              303.2.4   Readiness Sensitivities
              303.2.5   Manpower and Personnel Tradeoffs
              303.2.6   Training Tradeoffs
              303.2.7   Repair Level Analysis
              303.2.8   Diagnostic Tradeoffs
              303.2.9   Comparative Evaluations
              303.2.10 Energy Tradeoffs
              303.2.11 Survivability Tradeoffs
              303.2.12 Transportability Tradeoffs
              303.2.13 Support Facility Tradeoffs

        TASK SECTION 400 – DETERMINATION OF LOGISTIC SUPPORT
                    RESOURCE REQUIREMENTS

401 – Task Analysis (AL)

              401.2.1   Task Analysis
              401.2.2   Analysis Documentation
              401.2.3   New/Critical Support Resources
              401.2.4   Training Requirements and
                        Recommendations
              401.2.5   Design Improvements
              401.2.6   Management Plans
              401.2.7   Transportability Analysis
              401.2.8   Provisioning Requirements
              401.2.9   Validation
              401.2.10 ILS Output Products
              401.2.11 LSAR Updates

                          80

Appendix B: Biographies

Ronald Potter

Mr Potter is the Aeronautical Systems Division Focal Point for Logistics Support Analysis. He provided direct program support to the following programs: SDI, ATF, YA-7F, Peace Pearl, TTTS, C-17, F-16 DFCS, SRAM II, MILSTAR, Space Shuttle Facility, EW-ARC, ARTS, and VISTA. He has provided staff and program support since 1984 in both Acquisition Logistics Division (ALD/ERL) and Aeronautical Systems Division (ASD/ALTB). He has attended Air Command and Staff College, the Defense Systems Management College's Technical Management Course, and the Army Material Readiness Support Activity (MRSA) 2 week LSA course. Mr Potter is completing a Bachelor of Science Degree in Logistics Management from Park College, Dayton OH.

Fred Dello-Stritto

Mr Dello-Stritto is the Acquisition Logistic Division focal point for Logistic Support Analysis. He provides support for the F-16, ATF, F-4 Wild Weasel programs and participated in the development of Mil-Std-1388-2A, DOD Requirements for a Logistic Support Analysis Record. He has fives years experience in Logistic Support Analysis, and has worked as a project engineer in both Aeronautical Systems Division and the Air Force Acquisition Logistic Division's fuel systems and structures branch. He has a Bachelor of Science Degree in Chemical Engineering from Notre Dame University, South Bend IN. Mr Dello-Stritto has industrial experience in engine system and life support system development.

Travis Stewart

Mr Stewart is the Logistic Support Analysis Manager in the Acquisition Logistics Division (ALD/ERL). Mr Stewart is responsible for teaching the ALD 40 hour course on LSA and has additional LSA experience as a Logistics Management Specialist in Aeronautical System Division's engine program office working retrofit and support equipment projects. Mr Stewart has a Bachelor of Science Degree in Management from Central State University, Wilberforce OH, and has additional graduate education from the University of Dayton, Dayton OH.

Michael Bello

Mr Bello is the Chief of the Aeronautical System Division, Directorate of Systems Engineering, Integration and Technology Division, Systems Integration Branch (ASD/ENSTI). Mr Bello manages, directs and advises approximately sixty collocated engineers in the systems integration area. Mr Bello has over twenty-three years of acquisition experience and is responsible for the development, maintenance and dissemination of engineering policy initiatives on: Mil-Prime System Specifications; LSA Developmental Supportability Engineering Guidance; and the System Engineering Master Schedule (SEMS) concept. Mr Bello has a Bachelor of Science Degree in Aerospace Engineering from the Pennsylvania State University and additional eduction in engineering and management from the Air Force Institute of Technology, Defense Systems Management College, University of Tennessee Space Institute, and the Battelle Institute.

Appendix C: Expert Feedback Questionnaire

1.   Is this DSS useful in presenting LSA as an integral
function of the system engineering process? Please explain.

2.   Is this DSS useful in aiding the selection of LSA tasks?
Please explain.

3.   Is this DSS useful compared to LSA and system
engineering literature currently available for selecting and
tailoring LSA tasks? Please explain.

4.   Who do you think would benefit the most from this DSS?

5.   How would you recommend this DSS be used (i.e., in a
training program, by SPO personnel developing programs,
etc.)? Please explain.

6.   Does this DSS capture all relevant and important
information regarding:

     (1)   The application of LSA? If not, please explain.

     (2)   The selection of LSA tasks? If not, please
explain.

     (3)   The integration of LSA with other systems/logistics
engineering tasks? If not, please explain.

7. Is this DSS compatible with all relevant and important information regarding:

    (1) The application of LSA? If not, please explain.

    (2) The selection of LSA tasks? If not, please explain.

    (3) The integration of LSA with systems/logistics engineering? If not, please explain.

8. What improvements, changes, modifications, or additional capabilities would you recommend?

9. Are you aware of any other tailoring products, or tailoring products being developed which will make this DSS of little use? If so, what are they and what will they do?

10. Do you have any recommendations for additional research to be performed regarding the role of LSA in system engineering? Please explain.
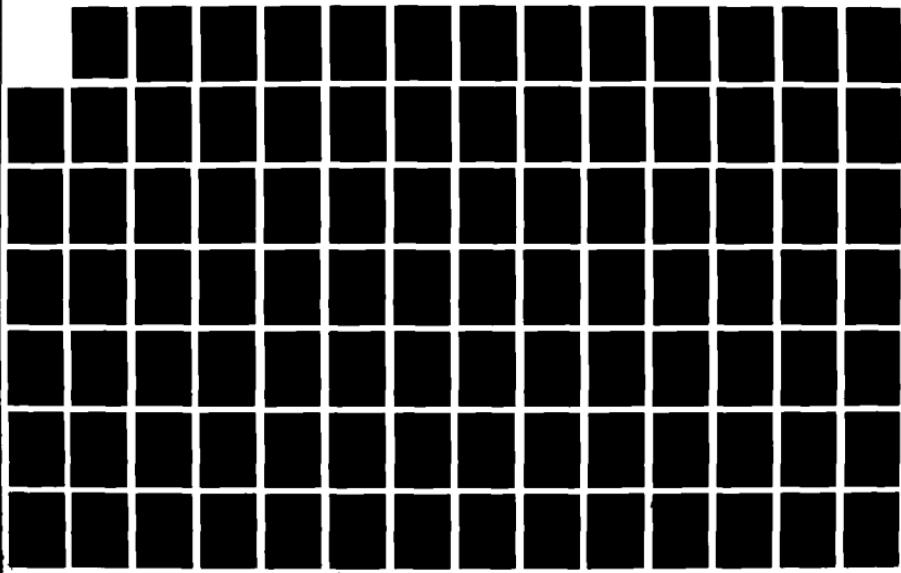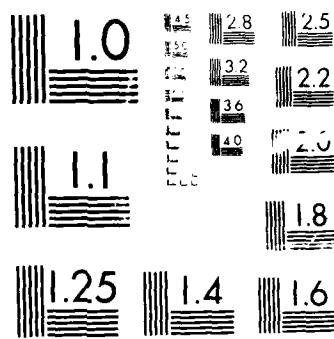
```
*   PROGRAM: MAIN.PRG
*   DATE: 17 JUN 89
*   PROGRAMMER: Capt Michael G. Heffner, AFIT/LSG (GAL-89S)

*   PURPOSE: Main program for LSA Decision Support System

*           This program performs the following:

*           1. Initialize computer operating environment.

*           2. Generate top level program menu for the
*              selection of appropriate subprograms.

*           3. Call required subprogram for execution.

*           4. Restore computer system environment upon
*              exiting the program.

*   Initialize computer system operating environment

*   Turn off status message screens

SET TALK OFF

*   Turn off confirmation bell

SET BELL OFF

*   Turn error messages off

SET SCOREBOARD OFF

*   Turn status screen off

SET STATUS OFF

*   User must press return to enter variable (CONFIRM)

SET CONFIRM ON
CLEAR

*   Present initial screen

TEXT


                    LOGISTIC   SUPPORT   ANALYSIS
                    DECISION   SUPPORT   SYSTEM
```

Version 1.1
27 July 1989

Developed and Programmed by:
Capt Michael G. Heffner


```
ENDTEXT
@22,1
WAIT
CLEAR
TEXT
```

NOTE

This program was developed in partial fulfillment of the
requirements for the Degree of Master of Science in
Acquisition Logistics Management, Air Force Institute of
Technology, Wright-Patterson AFB, OH.   Approved for public
release; distribution unlimited.

```
ENDTEXT
@22,1
WAIT
CLEAR

DO WHILE .T.
CLEAR
STORE " " TO mCHOICE
DO WHILE UPPER(mCHOICE) <>"X"
CLEAR

* Display Main Menu

@2,1 TO 21,79 DOUBLE    && Frame the menu screen
@1,20 TO 3,46 DOUBLE    && Frame the menu heading
@2,21 SAY "     LSA DSS MAIN MENU      "
@5,10 SAY "[A]   DECISION SUPPORT SYSTEM OVERVIEW"
@7,10 SAY "[B]   REVIEW SPECIFIC MIL-STD-1388-1A TASKS AND"
@8,10 SAY "      APPLICATION GUIDANCE"
@10,10 SAY "[C]   LSA TASK SELECTION DECISION SUPPORT SYSTEM"
@12,10 SAY "[D]   LSA TASK SELECTION REVIEW AND UPDATE"
@14,10 SAY "[E]   PRINT PREVIOUSLY SELECTED LSA TASKS"
@16,10 SAY "[F]   REVIEW LESSONS LEARNED"
@18,10 SAY "[X]   EXIT PROGRAM"
```

```
STORE " " TO mCHOICE

@23,13 SAY "SELECT TASK [A-E, X to quit] AND PRESS ENTER";
  GET mCHOICE PICTURE "!"

READ

*  Call appropriate program based on users selection

   DO CASE
      CASE mCHOICE="A"
         DO GENERAL.PRG
      CASE mCHOICE="B"
         DO REVTASK.PRG
      CASE mCHOICE="C"
         DO SELECT.PRG
      CASE mCHOICE="D"
         DO REVUP.PRG
      CASE mCHOICE="E"
         DO PRINTIT.PRG
      CASE mCHOICE="F"
         DO LLEARN.PRG
      CASE mCHOICE="X"
         SET TALK ON
         SET BELL ON
         SET SCOREBOARD ON
         SET STATUS ON
         SET CONFIRM OFF
         SET PATH TO C:
         CLEAR ALL
         CLOSE ALL
         EXIT
    ENDCASE
      LOOP
  ENDDO

* Reset the computer system environment

SET TALK ON
SET BELL ON
SET SCOREBOARD ON
SET STATUS ON
SET CONFIRM OFF
SET PATH TO C:
CLEAR ALL
RETURN
```

Appendix E: <u>General</u> <u>Overview</u> <u>Section</u> <u>Program</u> <u>Listing</u>

```
*   PROGRAM: GENERAL.PRG
*   PROGRAMMER:  Capt. Michael G. Heffner, AFIT/LSG (GAL-89S)
*   DATE: 13 JULY 1989

DO WHILE .T.
STORE " " TO mCHOICE

CLEAR
TEXT
                DECISION SUPPORT SYSTEM OVERVIEW

The purpose of this section is to provide you an overview
of:

        (1)   This Decision Support System (DSS).
        (2)   System engineering.
        (3)   Logistic Support Analysis (LSA).
        (4)   The interrelationships between LSA and system
engineering.

LSA DECISION SUPPORT SYSTEM.

The purpose of this DSS is to assist you in developing LSA
programs.  This DSS attempts to provide the information
required to select the proper LSA tasks and subtasks for an
acquisition effort.

ENDTEXT

* Generate screen up/screen down menu and screen number

@19,35 SAY "SCREEN 1 OF 12"

@20,1 TO 22,79 DOUBLE
@21,3 SAY "DO YOU WANT TO CONTINUE? (Y/N) "
@21,45 SAY "ENTER CHOICE AND PRESS ENTER " GET mCHOICE

READ

IF mCHOICE="N" .OR. mCHOICE="n"
    CLEAR
    RETURN
ENDIF
IF mCHOICE="Y" .OR. mCHOICE="y"
    CLEAR
    EXIT
ENDIF

ENDDO
```

```
* Screen 2 of 12

DO WHILE .T.
STORE " " TO mCHOICE

CLEAR
TEXT
                DECISION SUPPORT SYSTEM OVERVIEW

The LSA Task Selection and LSA the Task Review/Update
section of this DSS (options [C] and [D], respectively, on
the LSA DSS MAIN \MENU) allow you to select the various LSA
tasks and subtasks.

To assist you in the selection process, the DSS generates a
series of questions for each LSA subtask and provides you
the opportunity to select/retain the subtask, not
select/delete the subtask, or be unsure about the subtask.
The questions as designed to guide the subtask selection
thought process, and are suplemented by several additional
sources of information.

ENDTEXT

* Generate screen up/screen down menu and screen number

@19,35 SAY "SCREEN 2 OF 12"

@20,1 TO 22,79 DOUBLE
@21,3 SAY "DO YOU WANT TO CONTINUE? (Y/N) "
@21,45 SAY "ENTER CHOICE AND PRESS ENTER " GET mCHOICE

READ

IF mCHOICE="N" .OR. mCHOICE="n"
   CLEAR
   RETURN
ENDIF
IF mCHOICE="Y" .OR. mCHOICE="y"
   CLEAR
   EXIT
ENDIF

ENDDO

* Screen 3 of 12

DO WHILE .T.
STORE " " TO mCHOICE

CLEAR
TEXT
```

DECISION SUPPORT SYSTEM OVERVIEW

LSA DECISION SUPPORT SYSTEM.

Additional sources of information available to provide the information required to make a selection decision include:

(1) General task applicability by acquisition phase for each LSA subtask using the applicability matrix from Mil-Std-1388-1A.

(2) The LSA task descriptions from Mil-Std-1388-1A.

(3) The task input/output information from the ASD/ENS Developmental Supportability Engineering guide (August 1988).

(4) Acquisition Logistics Division (ALD) LSA Lessons Learned.

(5) LSA task application guidance.

ENDTEXT

* Generate screen up/screen down menu and screen number

```
@19,35 SAY "SCREEN 3 OF 12"

@20,1 TO 22,79 DOUBLE
@21,3 SAY "DO YOU WANT TO CONTINUE? (Y/N) "
@21,45 SAY "ENTER CHOICE AND PRESS ENTER " GET mCHOICE

READ

IF mCHOICE="N" .OR. mCHOICE="n"
    CLEAR
    RETURN
ENDIF
IF mCHOICE="Y" .OR. mCHOICE="y"
    CLEAR
    EXIT
ENDIF

ENDDO

* Screen 4 of 12

DO WHILE .T.
STORE " " TO mCHOICE

CLEAR
TEXT
                DECISION SUPPORT SYSTEM OVERVIEW
```

LSA DECISION SUPPORT SYSTEM.

The LSA application guidance information has been developed
to provide additional information regarding:

    (1)   LSA task/subtask flow and LSA task
interrelationships.
    (2)   The uses, and benefits of each LSA task and subtask.
    (3)   Interfaces between the LSA tasks and other
engineering tasks/programs (i.e., system safety, human
factors, reliability).
    (4)   Interfaces with Mil-Std-1388-2A, the LSA Record.
    (5)   General information on each task from past
experience.

ENDTEXT

* Generate screen up/screen down menu and screen number

@19,35 SAY "SCREEN 4 OF 12"

@20,1 TO 22,79 DOUBLE
@21,3 SAY "DO YOU WANT TO CONTINUE? (Y/N) "
@21,45 SAY "ENTER CHOICE AND PRESS ENTER " GET mCHOICE

READ

IF mCHOICE="N" .OR. mCHOICE="n"
    CLEAR
    RETURN
ENDIF
IF mCHOICE="Y" .OR. mCHOICE="y"
    CLEAR
    EXIT
ENDIF

ENDDO

* Screen 5 of 12

DO WHILE .T.
STORE " " TO mCHOICE

CLEAR
TEXT
               DECISION SUPPORT SYSTEM OVERVIEW

SYSTEM ENGINEERING.

Is an iterative process designed to transform an operational
need into system performance requirements and into a
preferred system configuration through analyses and

tradeoffs. The system engineering process can be thought of as a logical decision making or problem solving process.

ENDTEXT

* Generate screen up/screen down menu and screen number

@19,35 SAY "SCREEN 5 OF 12"

@20,1 TO 22,79 DOUBLE
@21,3 SAY "DO YOU WANT TO CONTINUE? (Y/N) "
@21,45 SAY "ENTER CHOICE AND PRESS ENTER " GET mCHOICE

READ

IF mCHOICE="N" .OR. mCHOICE="n"
    CLEAR
    RETURN
ENDIF
IF mCHOICE="Y" .OR. mCHOICE="y"
    CLEAR
    EXIT
ENDIF

ENDDO

* Screen 6 of 12

DO WHILE .T.
STORE " " TO mCHOICE

CLEAR
TEXT
                    DECISION SUPPORT SYSTEM OVERVIEW

SYSTEM ENGINEERING.
"Readers Digest" Condensed Version of System Engineering
Process
     Step 1.   Step 2.   Step 3.
************   ******************   ******************
* Identified***** Define System ******   Develop   ****
*   Need   *   * Requirements *   * Alternatives *
************   ******************   ******************
     Step 4.   Step 5.
**************************   ******************
*Analyze Alternatives and ***** Choose the   *
*Perform Trade-offs   *   * Optimum Design *
**************************   ******************

Note: This process is initiated at the system level and performed on progressively lower levels until the entire system is defined.

```
ENDTEXT

* Generate screen up/screen down menu and screen number

@19,35 SAY "SCREEN 6 OF 12"

@20,1 TO 22,79 DOUBLE
@21,3 SAY "DO YOU WANT TO CONTINUE? (Y/N) "
@21,45 SAY "ENTER CHOICE AND PRESS ENTER " GET mCHOICE

READ

IF mCHOICE="N" .OR. mCHOICE="n"
   CLEAR
   RETURN
ENDIF
IF mCHOICE="Y" .OR. mCHOICE="y"
   CLEAR
   EXIT
ENDIF

ENDDO

* Screen 7 of 12

DO WHILE .T.
STORE " " TO mCHOICE

CLEAR
TEXT
              DECISION SUPPORT SYSTEM OVERVIEW

SYSTEM ENGINEERING.

System engineering integrates subsystem physical, functional
and performance parameters to ensure the total system has
been optimized.

System engineering integrates and balances each of the
engineering specialties within the total engineering effort.

These specialties include reliability, maintainability,
system safety, human factors, producibility, logistics, and
others.

ENDTEXT
* Generate screen up/screen down menu and screen number

@19,35 SAY "SCREEN 7 OF 12"

@20,1 TO 22,79 DOUBLE
@21,3 SAY "DO YOU WANT TO CONTINUE? (Y/N) "
@21,45 SAY "ENTER CHOICE AND PRESS ENTER " GET mCHOICE
```

```
READ

IF mCHOICE="N" .OR. mCHOICE="n"
   CLEAR
   RETURN
ENDIF
IF mCHOICE="Y" .OR. mCHOICE="y"
   CLEAR
   EXIT
ENDIF

ENDDO

* Screen 8 of 12

DO WHILE .T.
STORE " " TO mCHOICE

CLEAR
TEXT
            DECISION SUPPORT SYSTEM OVERVIEW

LOGISTIC SUPPORT ANALYSIS (LSA).

LSA is that part of the system engineering process designed
to:

    (1) cause support and supportability requirements to
effect design;
    (2) define the support required for the system; and,
    (3) acquire and provide the required support for the
system during operations.

In order for an LSA program to be effective you must ensure
that the proper support and supportability analyses and
trade-offs are performed and fed into the overall system
engineering program in a timely manner such that the results
can be used during the analyses, trade-offs, development and
design the define the
entire system.

ENDTEXT

* Generate screen up/screen down menu and screen number

@19,35 SAY "SCREEN 8 OF 12"

@20,1 TO 22,79 DOUBLE
@21,3 SAY "DO YOU WANT TO CONTINUE? (Y/N) "
@21,45 SAY "ENTER CHOICE AND PRESS ENTER " GET mCHOICE

READ
```

```
IF mCHOICE="N" .OR. mCHOICE="n"
    CLEAR
    RETURN
ENDIF
IF mCHOICE="Y" .OR. mCHOICE="y"
    CLEAR
    EXIT
ENDIF

ENDDO

* Screen 9 of 12

DO WHILE .T.
STORE " " TO mCHOICE

CLEAR
TEXT
                DECISION SUPPORT SYSTEM OVERVIEW

LOGISTIC SUPPORT ANALYSIS (LSA).

In order for LSA to cause support and supportability related
requirements to effect design, the proper LSA tasks must be
selected.  In turn, the selected LSA tasks must be performed
in a manner such that the results can be effectively used in
the system engineering process.

If the LSA tasks, particularly the analyses and trade-off
tasks from task sections 200 and 300 of Mil-Std-1388-1A,
cannot be accomplished in a timely, and effective manner
their results cannot be integrated into the entire system's
design.

ENDTEXT

* Generate screen up/screen down menu and screen number

@19,35 SAY "SCREEN 9 OF 12"

@20,1 TO 22,79 DOUBLE
@21,3 SAY "DO YOU WANT TO CONTINUE? (Y/N) "
@21,45 SAY "ENTER CHOICE AND PRESS ENTER " GET mCHOICE

READ

IF mCHOICE="N" .OR. mCHOICE="n"
    CLEAR
    RETURN
ENDIF
IF mCHOICE="Y" .OR. mCHOICE="y"
    CLEAR
```

```
        EXIT
ENDIF

ENDDO

* Screen 10 of 12

DO WHILE .T.
STORE " " TO mCHOICE


CLEAR
TEXT
                    DECISION SUPPORT SYSTEM OVERVIEW

LOGISTIC SUPPORT ANALYSIS (LSA).

Furthermore, information generated by LSA tasks that are
required as input into system safety, reliability,
maintainability, survivability, environmental, etc. analyses
and trade-offs will not be available; as a result, these
other engineering efforts will suffer.

The overall result is that support and supportability
related requirements may not be given their due
consideration during system design and development.

ENDTEXT

* Generate screen up/screen down menu and screen number

@19,35 SAY "SCREEN 10 OF 12"

@20,1 TO 22,79 DOUBLE
@21,3 SAY "DO YOU WANT TO CONTINUE? (Y/N) "
@21,45 SAY "ENTER CHOICE AND PRESS ENTER " GET mCHOICE

READ

IF mCHOICE="N" .OR. mCHOICE="n"
    CLEAR
    RETURN
ENDIF
IF mCHOICE="Y" .OR. mCHOICE="y"
    CLEAR
    EXIT
ENDIF

ENDDO

* Screen 11 of 12

DO WHILE .T.
```

```
STORE " " TO mCHOICE


CLEAR
TEXT
              DECISION SUPPORT SYSTEM OVERVIEW

LOGISTIC SUPPORT ANALYSIS (LSA).

This open's the door to poorly supportable systems, since
the designer's options become very limited, or very costly
once the design has been committed.

Additionally, LSA analyses and trade-off tasks that are
performed after the fact waste time and money, and more
often than not, simply are simply "backfilled" with
information on the set design.

The end result is that LSA can only fulfill half of it
original intention; define and provide the required support
during operations, and is unable to effect the system for
support.

ENDTEXT

* Generate screen up/screen down menu and screen number

@19,35 SAY "SCREEN 11 OF 12"

@20,1 TO 22,79 DOUBLE
@21,3 SAY "DO YOU WANT TO CONTINUE? (Y/N) "
@21,45 SAY "ENTER CHOICE AND PRESS ENTER " GET mCHOICE

READ

IF mCHOICE="N" .OR. mCHOICE="n"
    CLEAR
    RETURN
ENDIF
IF mCHOICE="Y" .OR. mCHOICE="y"
    CLEAR
    EXIT
ENDIF

ENDDO

* Screen 12 of 12

DO WHILE .T.
STORE " " TO mCHOICE
```

```
CLEAR
TEXT
                DECISION SUPPORT SYSTEM OVERVIEW

LOGISTIC SUPPORT ANALYSIS (LSA).

LSA tasks should be selected based on the known system and
acquisition program requirements:

        (1) type of program;
        (2) amount of design freedom;
        (3) prior work (studies, analyses, similar efforts);
        (4) past experience & historical data;
        (5) acquisition strategy and phase;
        (6) system operation and support requirements;
        (7) other engineering specialties;
        (8) common sense.

ENDTEXT

* Generate screen up/screen down menu and screen number

@19,35 SAY "SCREEN 12 OF 12"

@20,1 TO 22,79 DOUBLE
@21,3 SAY "PRESS C AND ENTER TO CONTINUE" GET mCHOICE

READ

IF mCHOICE="C" .OR. mCHOICE="c"
    CLEAR
    RETURN
ENDIF

ENDDO

RETURN
```

```
* PROGRAM: REVTASK.PRG
* DATE: 24 JULY 1989
* PROGRAMMER: Capt Michael G. Heffner, AFIT/LSG (GAL-89S)

CLEAR

@1,1
TEXT

              LSA MIL-STD-1388-1A TASK AND SUBTASK SELECTION

                       DECISION SUPPORT SYSTEM

PURPOSE:  This module will allow you to review the various
tasks and subtasks of Mil-Std-1388-1A, and the associated
Developmental Supportability Enigneering Guide and
application guidance available for each task.


ENDTEXT
@22,1
WAIT
CLEAR

* Create Task Section Selection menu

DO WHILE .T.

CLEAR

STORE " " TO mCHOICER

@1,2 TO 22,79 DOUBLE
@2,20 SAY "MIL-STD-1388-1A TASK SECTIONS"
@5,5 SAY "[A] - TASK SECTION 100 - PROGRAM PLANNING AND
CONTROL"
@7,5 SAY "[B] - TASK SECTION 200 - MISSION AND SUPPORT
SYSTEM"
@8,5 SAY "       DEFINITION"
@10,5 SAY "[C] - TASK SECTION 300 - PREPARATION AND
EVALUATION"
@11,5 SAY "       OF ALTERNATIVES"
@13,5 SAY "[D] - TASK SECTION 400 - DETERMINATION OF
LOGISTIC"
@14,5 SAY "       SUPPORT RESOURCE REQUIREMENTS"
@16,5 SAY "[E] - TASK SECTION 500 - SUPPORTABILITY
ASSESSMENT"
@18,5 SAY "[Q] - QUIT AND RETURN TO MAIN MENU "
```

```
@20,5 SAY "ENTER YOUR CHOICE AND PRESS RETURN" GET mCHOICER


READ
CLEAR

    IF mCHOICER="A" .OR. mCHOICER="a"
       DO T100.PRG
       CLEAR
       DO REVTASK1.PRG
    ENDIF
    IF mCHOICER="B" .OR. mCHOICER="b"
       DO T200.PRG
       CLEAR
       DO REVTASK2.PRG
    ENDIF
    IF mCHOICER="C" .OR. mCHOICER="c"
       DO T300.PRG
       CLEAR
       DO REVTASK3.PRG
    ENDIF
    IF mCHOICER="D" .OR. mCHOICER="d"
       DO T400.PRG
       CLEAR
       DO REVTASK4.PRG
    ENDIF
    IF mCHOICER="E" .OR. mCHOICER="e"
       DO T500.PRG
       CLEAR
       DO REVTASK5.PRG
    ENDIF
    IF mCHOICER="Q" .OR. mCHOICER="q"
       CLOSE DATABASES
       CLEAR
       RETURN
    ENDIF

CLEAR

ENDDO

CLEAR
CLOSE DATABASES
RETURN



* PROGRAM: REVTASK1.PRG
* DATE: 24 JULY 1989
* PROGRAMMER: Capt Michael G. Heffner, AFIT/LSG (89S-GAL)

* Create Task Section Selection menu
```

```
DO WHILE  .T.

STORE " " TO mTASC

CLEAR

STORE " " TO mTASC

@1,2 TO 20,79 DOUBLE
@2,20 SAY "MIL-STD-1388-1A TASK SECTION 100"
@3,20 SAY "  PROGRAM PLANNING AND CONTROL"
@5,5 SAY "[A] - TASK 101 - DEVELOPMENT OF AN EARLY LSA
STRATEGY"
@7,5 SAY "[B] - TASK 102 - LOGISTIC SUPPORT ANALYSIS PLAN"
@9,5 SAY "[C] - TASK 103 - PROGRAM AND DESIGN REVIEWS"
@11,5 SAY "[Q] - QUIT AND RETURN TO TASK SECTION MENU "
@15,5 SAY "ENTER YOUR CHOICE AND PRESS RETURN" GET mTASC

READ


IF mTASC="A" .OR. mTASC="a"

    CLEAR
    DO T101.PRG
    CLEAR

    STORE " " TO mSEL

    DO WHILE .T.

    STORE " " TO mSEL

    CLEAR

    @1,2 TO 20,79 DOUBLE
    @2,20 SAY "TASK 101 - PROGRAM PLANNING AND CONTROL"
    @5,5 SAY "[A] - MIL-STD-1388-1A TASK DESCRIPTION"
    @7,5 SAY "[B] - DEVELOPMENTAL SUPPORTABILITY ENGINEERING"
    @8,5 SAY "      GUIDE INFORMATION"
    @10,5 SAY "[C] - TASK 101 APPLICATION GUIDANCE"
    @12,5 SAY "[Q] - QUIT AND RETURN TO TASK SECTION MENU"
    @15,5 SAY "ENTER YOUR CHOICE AND PRESS RETURN" GET mSEL
    READ

    CLEAR

    IF mSEL="A" .OR. mSEL="a"
        DO M101-1.PRG
    ENDIF
    IF mSEL="B" .OR. mSEL="b"
        DO D101-1.PRG
    ENDIF
```

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```
        IF mSEL="C" .OR. mSEL="c"
           DO G101-1.PRG
        ENDIF
        IF mSEL="Q" .OR. mSEL="q"
           CLEAR
           EXIT
        ENDIF
        ENDDO
     ENDIF


     IF mTASC="B" .OR. mTASC="b"

        CLEAR
        DO T102.PRG
        CLEAR

        STORE " " TO mSEL

        DO WHILE .T.

        STORE " " TO mSEL

        CLEAR

        @1,2 TO 20,79 DOUBLE
        @2,20 SAY "TASK 102 - LOGISTIC SUPPORT ANALYSIS PLAN"
        @5,5 SAY "[A] - MIL-STD-1388-1A TASK DESCRIPTION"
        @7,5 SAY "[B] - DEVELOPMENTAL SUPPORTABILITY ENGINEERING"
        @8,5 SAY "        GUIDE INFORMATION"
        @10,5 SAY "[C] - TASK 102 APPLICATION GUIDANCE"
        @12,5 SAY "[Q] - QUIT AND RETURN TO TASK SECTION MENU"
        @15,5 SAY "ENTER YOUR CHOICE AND PRESS RETURN" GET mSEL
        READ

        CLEAR

        IF mSEL="A" .OR. mSEL="a"
           DO M102-1.PRG
        ENDIF
        IF mSEL="B" .OR. mSEL="b"
           DO D102-1.PRG
        ENDIF
        IF mSEL="C" .OR. mSEL="c"
           DO G102-1.PRG
        ENDIF
        IF mSEL="Q" .OR. mSEL="q"
           CLEAR
           EXIT
        ENDIF
        ENDDO

     ENDIF
```

```
IF mTASC="C" .OR. mTASC="c"

    CLEAR
    DO T103.PRG
    CLEAR

    STORE " " TO mSEL

    DO WHILE .T.

    STORE " " TO mSEL

    CLEAR

    @1,2 TO 20,79 DOUBLE
    @2,20 SAY "TASK 103 - PROGRAM AND DESIGN REVIEWS"
    @5,5 SAY "[A] - MIL-STD-1388-1A TASK DESCRIPTION"
    @7,5 SAY "[B] - DEVELOPMENTAL SUPPORTABILITY ENGINEERING"
    @8,5 SAY "       GUIDE INFORMATION"
    @10,5 SAY "[C] - TASK 103 APPLICATION GUIDANCE"
    @12,5 SAY "[Q] - QUIT AND RETURN TO TASK SECTION MENU"
    @15,5 SAY "ENTER YOUR CHOICE AND PRESS RETURN" GET mSEL
    READ

    CLEAR

    IF mSEL="A" .OR. mSEL="a"
       DO M103-1.PRG
    ENDIF
    IF mSEL="B" .OR. mSEL="b"
       DO D103-1.PRG
    ENDIF
    IF mSEL="C" .OR. mSEL="c"
       DO G103-1.PRG
    ENDIF
    IF mSEL="Q" .OR. mSEL="q"
       CLEAR
       EXIT
    ENDIF
    ENDDO

ENDIF

IF mTASC="Q" .OR. mTASC="q"

    CLEAR
    RETURN
ENDIF
ENDDO
RETURN

* PROGRAM: REVTASK2.PRG
* DATE: 24 JULY 1989
```

104

```
* PROGRAMMER: Capt Michael G. Heffner, AFIT/LSG (89S-GAL)

* Create Task Section Selection menu

DO WHILE .T.

CLEAR

STORE " " TO mTASC

@1,2 TO 22,79 DOUBLE
@2,20 SAY "  MIL-STD-1388-1A TASK SECTION 200"
@3,20 SAY "MISSION AND SUPPORT SYSTEMS DEFINITION"
@5,5 SAY "[A] - TASK 201 - USE STUDY"
@7,5 SAY "[B] - TASK 202 - MISSION HARDWARE, SOFTWARE AND"
@8,5 SAY "          SUPPORT SYSTEM STANDARDIZATION"
@10,5 SAY "[C] - TASK 203 - COMPARATIVE ANALYSIS"
@12,5 SAY "[D] - TASK 204 - TECHNOLOGICAL OPPORTUNITIES"
@14,5 SAY "[E] - TASK 205 - SUPPORTABILITY AND
SUPPORTABILITY"
@15,5 SAY "          RELATED DESIGN FACTORS"
@17,5 SAY "[Q] - QUIT AND RETURN TO TASK SECTION MENU "
@20,5 SAY "ENTER YOUR CHOICE AND PRESS RETURN" GET mTASC

READ


IF mTASC="A" .OR. mTASC="a"

    CLEAR
    DO T201.PRG
    CLEAR

    STORE " " TO mSEL

    DO WHILE .T.

    STORE " " TO mSEL

    CLEAR

    @1,2 TO 20,79 DOUBLE
    @2,20 SAY "TASK 201 - USE STUDY"
    @5,5 SAY "[A] - MIL-STD-1388-1A TASK DESCRIPTION"
    @7,5 SAY "[B] - DEVELOPMENTAL SUPPORTABILITY ENGINEERING"
    @8,5 SAY "          GUIDE INFORMATION"
    @10,5 SAY "[C] - TASK 201 APPLICATION GUIDANCE"
    @12,5 SAY "[Q] - QUIT AND RETURN TO TASK SECTION MENU"
    @15,5 SAY "ENTER YOUR CHOICE AND PRESS RETURN" GET mSEL
    READ

    CLEAR
```

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```
        IF mSEL="A" .OR. mSEL="a"
            DO M201-1.PRG
        ENDIF
        IF mSEL="B" .OR. mSEL="b"
            DO D201-1.PRG
        ENDIF
        IF mSEL="C" .OR. mSEL="c"
            DO G201-1.PRG
        ENDIF
        IF mSEL="Q" .OR. mSEL="q"
            CLEAR
            EXIT
        ENDIF
        ENDDO

    ENDIF

    IF mTASC="B" .OR. mTASC="b"

        CLEAR
        DO T202.PRG
        CLEAR

        STORE " " TO mSEL

        DO WHILE .T.

        STORE " " TO mSEL

        CLEAR

        @1,2 TO 20,79 DOUBLE
        @2,9 SAY "TASK 202 - MISSION HW, SW & SUPPORT SYSTEM
        DEFINITION"
        @5,5 SAY "[A] - MIL-STD-1388-1A TASK DESCRIPTION"
        @7,5 SAY "[B] - DEVELOPMENTAL SUPPORTABILITY ENGINEERING"
        @8,5 SAY "      GUIDE INFORMATION"
        @10,5 SAY "[C] - TASK 202 APPLICATION GUIDANCE"
        @12,5 SAY "[Q] - QUIT AND RETURN TO TASK SECTION MENU"
        @15,5 SAY "ENTER YOUR CHOICE AND PRESS RETURN" GET mSEL
        READ

        CLEAR

        IF mSEL="A" .OR. mSEL="a"
            DO M202-1.PRG
        ENDIF
        IF mSEL="B" .OR. mSEL="b"
            DO D202-1.PRG
        ENDIF
        IF mSEL="C" .OR. mSEL="c"
            DO G202-1.PRG
        ENDIF
```

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```
              IF mSEL="Q" .OR. mSEL="q"
                  CLEAR
                  EXIT
              ENDIF
              ENDDO

      ENDIF

      IF mTASC="C" .OR. mTASC="c"

          CLEAR
          DO T203.PRG
          CLEAR

          STORE " " TO mSEL

          DO WHILE .T.

          STORE " " TO mSEL

          CLEAR

          @1,2 TO 20,79 DOUBLE
          @2,20 SAY "TASK 203 - COMPARATIVE ANALYSIS"
          @5,5 SAY "[A] - MIL-STD-1388-1A TASK DESCRIPTION"
          @7,5 SAY "[B] - DEVELOPMENTAL SUPPORTABILITY ENGINEERING"
          @8,5 SAY "        GUIDE INFORMATION"
          @10,5 SAY "[C] - TASK 203 APPLICATION GUIDANCE"
          @12,5 SAY "[Q] - QUIT AND RETURN TO TASK SECTION MENU"
          @15,5 SAY "ENTER YOUR CHOICE AND PRESS RETURN" GET mSEL
          READ

          CLEAR

          IF mSEL="A" .OR. mSEL="a"
              DO M203-1.PRG
          ENDIF
          IF mSEL="B" .OR. mSEL="b"
              DO D203-1.PRG
          ENDIF
          IF mSEL="C" .OR. mSEL="c"
              DO G203-1.PRG
          ENDIF
          IF mSEL="Q" .OR. mSEL="q"
              CLEAR
              EXIT
          ENDIF
          ENDDO

      ENDIF

      IF mTASC="D" .OR. mTASC="d"
```

```
        CLEAR
        DO T204.PRG
        CLEAR

        STORE " " TO mSEL

        DO WHILE .T.

        STORE " " TO mSEL

        CLEAR

        @1,2 TO 20,79 DOUBLE
        @2,20 SAY "TASK 204 - TECHNOLOGICAL OPPORTUNITIES"
        @5,5 SAY "[A] - MIL-STD-1388-1A TASK DESCRIPTION"
        @7,5 SAY "[B] - DEVELOPMENTAL SUPPORTABILITY ENGINEERING"
        @8,5 SAY "        GUIDE INFORMATION"
        @10,5 SAY "[C] - TASK 204 APPLICATION GUIDANCE"
        @12,5 SAY "[Q] - QUIT AND RETURN TO TASK SECTION MENU"
        @15,5 SAY "ENTER YOUR CHOICE AND PRESS RETURN" GET mSEL
        READ

        CLEAR

        IF mSEL="A" .OR. mSEL="a"
            DO M204-1.PRG
        ENDIF
        IF mSEL="B" .OR. mSEL="b"
            DO D204-1.PRG
        ENDIF
        IF mSEL="C" .OR. mSEL="c"
            DO G204-1.PRG
        ENDIF
        IF mSEL="Q" .OR. mSEL="q"
            CLEAR
            EXIT
        ENDIF
        ENDDO

    ENDIF

    IF mTASC="E" .OR. mTASC="d"

        CLEAR
        DO T205.PRG
        CLEAR

        STORE " " TO mSEL

        DO WHILE .T.

        STORE " " TO mSEL
```

```
CLEAR

@1,2 TO 20,79 DOUBLE
@2,20 SAY "TASK 205 - SUPPORTABILITY AND SUPPORTABILITY"
@3,20 SAY "       RELATED DESIGN CONSTRAINTS"
@5,5 SAY "[A] - MIL-STD-1388-1A TASK DESCRIPTION"
@7,5 SAY "[B] - DEVELOPMENTAL SUPPORTABILITY ENGINEERING"
@8,5 SAY "       GUIDE INFORMATION"
@10,5 SAY "[C] - TASK 205 APPLICATION GUIDANCE"
@12,5 SAY "[Q] - QUIT AND RETURN TO TASK SECTION MENU"
@15,5 SAY "ENTER YOUR CHOICE AND PRESS RETURN" GET mSEL
READ

CLEAR

IF mSEL="A" .OR. mSEL="a"
    DO M205-1.PRG
ENDIF
IF mSEL="B" .OR. mSEL="b"
    DO D205-1.PRG
ENDIF


IF mSEL="C" .OR. mSEL="c"
    DO G205-1.PRG
ENDIF


IF mSEL="Q" .OR. mSEL="q"
    CLEAR
    EXIT
ENDIF

ENDDO

ENDIF

IF mTASC="Q" .OR. mTASC="q"

    CLEAR
    RETURN
ENDIF
ENDDO
RETURN

* PROGRAM: REVTASK3.PRG
* DATE: 24 JULY 1989
* PROGRAMMER: Capt Michael G. Heffner, AFIT/LSG (89S-GAL)

* Create Task Section Selection menu

DO WHILE .T.

CLEAR
```

```
STORE " " TO mTASC

@1,2 TO 22,79 DOUBLE
@2,20 SAY "MIL-STD-1388-1A TASK SECTION 300"
@3,20 SAY "PREPARATION AND EVALUATION OF ALTERNATIVES"
@5,5 SAY "[A] - TASK 301 - FUNCTIONAL REQUIREMENTS"
@6,5 SAY "         IDENTIFICATION"
@8,5 SAY "[B] - TASK 302 - SUPPORT SYSTEM ALTERNATIVES"
@10,5 SAY "[C] - TASK 303 - EVALUATION OF ALTERNATIVES AND"
@11,5 SAY "         TRADEOFF ANALYSIS"
@13,5 SAY "[Q] - QUIT AND RETURN TO TASK SECTION MENU "
@20,5 SAY "ENTER YOUR CHOICE AND PRESS RETURN" GET mTASC

READ


IF mTASC="A" .OR. mTASC="a"

    CLEAR
    DO T301.PRG
    CLEAR

    STORE " " TO mSEL

    DO WHILE .T.

    STORE " " TO mSEL

    CLEAR

    @1,2 TO 20,79 DOUBLE
    @2,20 SAY "TASK 301 - FUNCTIONAL REQUIREMENTS"
    @5,5 SAY "[A] - MIL-STD-1388-1A TASK DESCRIPTION"
    @7,5 SAY "[B] - DEVELOPMENTAL SUPPORTABILITY ENGINEERING"
    @8,5 SAY "         GUIDE INFORMATION"
    @10,5 SAY "[C] - TASK 301 APPLICATION GUIDANCE"
    @12,5 SAY "[Q] - QUIT AND RETURN TO TASK SECTION MENU"
    @15,5 SAY "ENTER YOUR CHOICE AND PRESS RETURN" GET mSEL
    READ

    CLEAR

    IF mSEL="A" .OR. mSEL="a"
        DO M301-1.PRG
    ENDIF
    IF mSEL="B" .OR. mSEL="b"
        DO D301-1.PRG
    ENDIF
    IF mSEL="C" .OR. mSEL="c"
        DO G301-1.PRG
    ENDIF
    IF mSEL="Q" .OR. mSEL="q"
        CLEAR
```

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```
            EXIT
        ENDIF
        ENDDO

    ENDIF

    IF mTASC="B" .OR. mTASC="b"

        CLEAR
        DO T302.PRG
        CLEAR

        STORE " " TO mSEL

        DO WHILE .T.

        STORE " " TO mSEL

        CLEAR

        @1,2 TO 20,79 DOUBLE
        @2,20 SAY "TASK 302 - SUPPORT SYSTEM ALTERNATIVES"
        @5,5 SAY "[A] - MIL-STD-1388-1A TASK DESCRIPTION"
        @7,5 SAY "[B] - DEVELOPMENTAL SUPPORTABILITY ENGINEERING"
        @8,5 SAY "       GUIDE INFORMATION"
        @10,5 SAY "[C] - TASK 302 APPLICATION GUIDANCE"
        @12,5 SAY "[Q] - QUIT AND RETURN TO TASK SECTION MENU"
        @15,5 SAY "ENTER YOUR CHOICE AND PRESS RETURN" GET mSEL
        READ

        CLEAR

        IF mSEL="A" .OR. mSEL="a"
            DO M302-1.PRG
        ENDIF
        IF mSEL="B" .OR. mSEL="b"
            DO D302-1.PRG
        ENDIF
        IF mSEL="C" .OR. mSEL="c"
            DO G302-1.PRG
        ENDIF
        IF mSEL="Q" .OR. mSEL="q"
            CLEAR
            EXIT
        ENDIF
        ENDDO
    ENDIF

    IF mTASC="C" .OR. mTASC="c"

        CLEAR
        DO T303.PRG
        CLEAR
```

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```
            STORE " " TO mSEL

            DO WHILE .T.

            STORE " " TO mSEL

            CLEAR

            @1,2 TO 20,79 DOUBLE
            @2,9 SAY "TASK 303 - EVALUATION OF ALTERNATIVES AND
            TRADEOFFS"
            @5,5 SAY "[A] - MIL-STD-1388-1A TASK DESCRIPTION"
            @7,5 SAY "[B] - DEVELOPMENTAL SUPPORTABILITY ENGINEERING"
            @8,5 SAY "      GUIDE INFORMATION"
            @10,5 SAY "[C] - TASK 303 APPLICATION GUIDANCE"
            @12,5 SAY "[Q] - QUIT AND RETURN TO TASK SECTION MENU"
            @15,5 SAY "ENTER YOUR CHOICE AND PRESS RETURN" GET mSEL
            READ

            CLEAR

            IF mSEL="A" .OR. mSEL="a"
               DO M303-1.PRG
            ENDIF
            IF mSEL="B" .OR. mSEL="b"
               DO D303-1.PRG
            ENDIF
            IF mSEL="C" .OR. mSEL="c"
               DO G303-1.PRG
            ENDIF
            IF mSEL="Q" .OR. mSEL="q"
               CLEAR
               EXIT
            ENDIF
            ENDDO

      ENDIF

      IF mTASC="Q" .OR. mTASC="q"

         CLEAR
         RETURN

      ENDIF

      ENDDO
      RETURN


* PROGRAM: REVTASK4.PRG
* DATE: 24 JULY 1989
* PROGRAMMER: Capt Michael G. Heffner, AFIT/LSG (89S-GAL)
```

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```
* Create Task Section Selection menu

DO WHILE .T.

CLEAR

STORE " " TO mTASC

@1,2 TO 22,79 DOUBLE
@2,20 SAY "MIL-STD-1388-1A TASK SECTION 400"
@3,9 SAY "DETERMINATION OF LOGISTIC SUPPORT RESOURCE"
@3,51 SAY " REQUIREMENTS"
@5,5 SAY "[A] - TASK 401 - TASK ANALYSIS"
@7,5 SAY "[B] - TASK 402 - EARLY FIELDING ANALYSIS"
@9,5 SAY "[C] - TASK 403 - POST PRODUCTION SUPPORT ANALYSIS"
@11,5 SAY "[Q] - QUIT AND RETURN TO TASK SECTION MENU "
@20,5 SAY "ENTER YOUR CHOICE AND PRESS RETURN" GET mTASC

READ


IF mTASC="A" .OR. mTASC="a"

    CLEAR
    DO T401.PRG
    CLEAR

    STORE " " TO mSEL

    DO WHILE .T.

    STORE " " TO mSEL

    CLEAR

    @1,2 TO 20,79 DOUBLE
    @2,20 SAY "TASK 401 - TASK ANALYSIS"
    @5,5 SAY "[A] - MIL-STD-1388-1A TASK DESCRIPTION"
    @7,5 SAY "[B] - DEVELOPMENTAL SUPPORTABILITY ENGINEERING"

    @8,5 SAY "        GUIDE INFORMATION"
    @10,5 SAY "[C] - TASK 401 APPLICATION GUIDANCE"
    @12,5 SAY "[Q] - QUIT AND RETURN TO TASK SECTION MENU"
    @15,5 SAY "ENTER YOUR CHOICE AND PRESS RETURN" GET mSEL
    READ

    CLEAR

    IF mSEL="A" .OR. mSEL="a"
        DO M401-1.PRG
    ENDIF
    IF mSEL="B" .OR. mSEL="b"
```

```
        DO  D401-1.PRG
     ENDIF
     IF  mSEL="C"  .OR.  mSEL="c"
        DO  G401-1.PRG
     ENDIF
     IF  mSEL="Q"  .OR.  mSEL="q"
        CLEAR
        EXIT
     ENDIF
     ENDDO
ENDIF

IF  mTASC="B"  .OR.  mTASC="b"

     CLEAR
     DO  T402.PRG
     CLEAR

     STORE  "  "  TO  mSEL

     DO  WHILE  .T.

     STORE  "  "  TO  mSEL

     CLEAR

     @1,2  TO  20,79  DOUBLE
     @2,20  SAY  "TASK 402 - EARLY FIELDING ANALYSIS"
     @5,5  SAY  "[A] - MIL-STD-1388-1A TASK DESCRIPTION"
     @7,5  SAY  "[B] - DEVELOPMENTAL SUPPORTABILITY ENGINEERING"
     @8,5  SAY  "        GUIDE INFORMATION"
     @10,5  SAY  "[C] - TASK 402 APPLICATION GUIDANCE"
     @12,5  SAY  "[Q] - QUIT AND RETURN TO TASK SECTION MENU"
     @15,5  SAY  "ENTER YOUR CHOICE AND PRESS RETURN" GET mSEL
     READ

     CLEAR

     IF  mSEL="A"  .OR.  mSEL="a"
        DO  M402-1.PRG
     ENDIF
     IF  mSEL="B"  .OR.  mSEL="b"
        DO  D402-1.PRG
     ENDIF
     IF  mSEL="C"  .OR.  mSEL="c"
        DO  G402-1.PRG
     ENDIF
     IF  mSEL="Q"  .OR.  mSEL="q"
        CLEAR
        EXIT
     ENDIF
     ENDDO
ENDIF
```

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```
IF mTASC="C" .OR. mTASC="c"

    CLEAR
    DO T403.PRG
    CLEAR

    STORE " " TO mSEL

    DO WHILE .T.

    STORE " " TO mSEL

    CLEAR

    @1,2 TO 20,79 DOUBLE
    @2,9 SAY "TASK 403 - POST PRODUCTION SUPPORT ANALYSIS"
    @5,5 SAY "[A] - MIL-STD-1388-1A TASK DESCRIPTION"
    @7,5 SAY "[B] - DEVELOPMENTAL SUPPORTABILITY ENGINEERING"
    @8,5 SAY "        GUIDE INFORMATION"
    @10,5 SAY "[C] - TASK 403 APPLICATION GUIDANCE"
    @12,5 SAY "[Q] - QUIT AND RETURN TO TASK SECTION MENU"
    @15,5 SAY "ENTER YOUR CHOICE AND PRESS RETURN" GET mSEL
    READ

    CLEAR

    IF mSEL="A" .OR. mSEL="a"
        DO M403-1.PRG
    ENDIF
    IF mSEL="B" .OR. mSEL="b"
        DO D403-1.PRG
    ENDIF
    IF mSEL="C" .OR. mSEL="c"
        DO G403-1.PRG
    ENDIF
    IF mSEL="Q" .OR. mSEL="q"
        CLEAR
        EXIT
    ENDIF
    ENDDO
ENDIF

IF mTASC="Q" .OR. mTASC="q"

    CLEAR
    RETURN

ENDIF

ENDDO
RETURN
```

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```
* PROGRAM: REVTASK5.PRG
* DATE: 24 JULY 1989
* PROGRAMMER: Capt Michael G. Heffner, AFIT/LSG (89S-GAL)

* Create Task Section Selection menu

DO WHILE .T.

CLEAR

STORE " " TO mTASC

@1,2 TO 22,79 DOUBLE
@2,20 SAY "MIL-STD-1388-1A TASK SECTION 500"
@3,20 SAY "   SUPPORTABILITY ASSESSMENT"
@5,5 SAY "[A] - TASK 501 - SUPPORTABILITY TEST, EVALUATION"
@6,5 SAY "        AND VERIFICATION"
@8,5 SAY "[Q] - QUIT AND RETURN TO TASK SECTION MENU "
@20,5 SAY "ENTER YOUR CHOICE AND PRESS RETURN" GET mTASC

READ


IF mTASC="A" .OR. mTASC="a"

    CLEAR
    DO T501.PRG
    CLEAR

    STORE " " TO mSEL

    DO WHILE .T.

    STORE " " TO mSEL

    CLEAR

    @1,2 TO 20,79 DOUBLE
    @2,20 SAY "TASK 501 - SUPPORTABILITY TEST, EVALUATION"
    @3,20 SAY "              AND VERIFICATION"
    @5,5 SAY "[A] - MIL-STD-1388-1A TASK DESCRIPTION"
    @7,5 SAY "[B] - DEVELOPMENTAL SUPPORTABILITY ENGINEERING"
    @8,5 SAY "        GUIDE INFORMATION"
    @10,5 SAY "[C] - TASK 501 APPLICATION GUIDANCE"
    @12,5 SAY "[Q] - QUIT AND RETURN TO TASK SECTION MENU"
    @15,5 SAY "ENTER YOUR CHOICE AND PRESS RETURN" GET mSEL
    READ

    CLEAR

    IF mSEL="A" .OR. mSEL="a"
        DO M501-1.PRG
```

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```
        ENDIF
        IF mSEL="B" .OR. mSEL="b"
            DO D501-1.PRG
        ENDIF
        IF mSEL="C" .OR. mSEL="c"
            DO G501-1.PRG
        ENDIF
        IF mSEL="Q" .OR. mSEL="q"
            CLEAR
            EXIT
        ENDIF
        ENDDO

    ENDIF

    IF mTASC="Q" .OR. mTASC="q"

        CLEAR
        RETURN

    ENDIF

    ENDDO
    RETURN
```

* TITLE: SELECT.PRG
* PROGRAMMER: Capt Michael G. Heffner, AFIT/LSG (GAL-89S)
* DATE: 18 JULY 89

* Generate Introduction to section

CLEAR
TEXT

                  LSA MIL-STD-1388-1A TASK AND SUBTASK SELECTION

                          DECISION SUPPORT SYSTEM

PURPOSE:

The purpose of this program is to assist you in selecting
the appropriate LSA tasks and subtasks, from
Mil-Std-1388-1A, for your acquisition program. This section
will ask you a series of questions on each LSA subtask. You
may choose to select, not select, or be unsure of the
subtask in question, and seek additional guidance from
several on-line sources. These sources include:
Mil-Std-1388-1A task description; ASD/ENS Developmental
Supportability Engineering Guide; and Task application
guidance developed specifically for this DSS. A menu will
be generated at the bottom of each question screen to accept
your choice. Additionally, messages regarding general task
applicability and task selection status will be generated on
each question screen.

ENDTEXT
@22,1
WAIT "PRESS ANY KEY TO CONTINUE"
CLEAR
TEXT

                  LSA MIL-STD-1388-1A TASK AND SUBTASK SELECTION

                          DECISION SUPPORT SYSTEM

NOTE:

If you choose to end this section before review and
selection of all the tasks are completed you will not loose
your work. To continue your review, simply select the
REVIEW/UPDATE LSA TASKS option at the main menu.

ENDTEXT
@22,1
WAIT "PRESS ANY KEY TO CONTINUE"

```
CLEAR

* Generate "What phase is your program in?" menu

STORE "F" TO mSET

DO WHILE mSET="F"

STORE " " TO mPHASE

CLEAR

@2,0 TO 20,79 DOUBLE
@4,7 SAY "WHAT PHASE IS YOUR PROGRAM IN ? "
@8,7 SAY "[A]   CONCEPT EXPLORATION"
@10,7 SAY "[B]   DEMONSTRATION-VALIDATION"
@12,7 SAY "[C]   FULL SCALE ENGINEERING DEVELOPMENT /"
@13,7 SAY "      LOW RATE INITIAL PRODUCTION"
@15,7 SAY "[D]   FULL RATE PRODUCTION/DEPLOYMENT"
@17,7 SAY "[Q]   TO EXIT AND RETURN TO MAIN MENU"
@23,5 SAY "ENTER PROGRAM PHASE [A-D, Q to exit] ";
    GET mPHASE PICTURE "!"
@23,47 SAY "AND PRESS ENTER"

READ

IF mPHASE="A" .OR. mPHASE="a"
    STORE "T" TO mSET
ENDIF

IF mPHASE="B" .OR. mPHASE="b"
    STORE "T" TO mSET
ENDIF

IF mPHASE="C" .OR. mPHASE="c"
    STORE "T" TO mSET
ENDIF

IF mPHASE="D" .OR. mPHASE="d"
    STORE "T" TO mSET
ENDIF

IF mPHASE="Q" .OR. mPHASE="q"
    STORE "T" TO mSET
    RETURN
ENDIF

CLEAR

ENDDO

CLEAR
```

```
* Generate a directory of current program files

STORE " " TO mDDD
STORE " " TO mDD

DO WHILE .T.

    @2,1 TO 7,79 DOUBLE
    @4,5 SAY "DO YOU WANT A LISTING OF CURRENT PROGRAM
FILES?"
    @5,5 SAY "[Y] YES;  [N] NO" GET mDDD
    @5,24 SAY "PRESS ENTER"
    READ

    IF mDDD="Y" .OR. mDDD="y"

        STORE "F" TO mSET

        DO WHILE mSET="F"

        CLEAR

        @2,1 TO 9,79 DOUBLE
        @3,25 SAY "DIRECTORY OF CURRENT PROGRAM FILES"
        @5,5 SAY "ON WHICH DISK DRIVE DO YOU STORE PROGRAM
FILES?";
        GET mDD
        @5,57 SAY "AND PRESS RETURN"
        READ
        CLEAR

            IF mDD="A" .OR. mDD="a"
               DIR A:*.DBF
               STORE "T" TO mSET
            ENDIF

            IF mDD="B" .OR. mDD="b"
               DIR B:*.DBF
               STORE "T" TO mSET
            ENDIF

            IF mDD="C" .OR. mDD="c"
               DIR C:*.DBF
               STORE "T" TO mSET
            ENDIF

            IF mDD="D" .OR. mDD="d"
               DIR D:*.DBF
               STORE "T" TO mSET
            ENDIF

         ENDDO
         @22,1
```

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```
              WAIT "PRESS ANY KEY TO CONTINUE"
              CLEAR
              EXIT

         ENDIF

         IF mDDD="N" .OR. mDDD="n"
             CLEAR
             EXIT
         ENDIF

ENDDO
CLEAR

* Generate menu to enter program name

STORE SPACE(12) TO mNAME

@2,5 TO 11,65 DOUBLE
@1,7 TO 3,63 DOUBLE
@2,8 SAY "          ENTER THE NAME OF YOUR "
@5,7 SAY "IMPORTANT! PLEASE READ THE FOLLOWING MESSAGE:"
@6,7 SAY "MAKE SURE FILE NAME IS NO LONGER THAN EIGHT (8)"
@7,7 SAY "CHARACTERS LONG AND ENDS WITH .DBF"
@8,7 SAY "EXAMPLE: SAMPLES.DBF"
@10,15 SAY "ENTER PROGRAM NAME AND PRESS RETURN" GET mNAME

READ

CLEAR


     COPY FILE TASKS1.DBF TO &mNAME
     CLOSE DATABASES
     USE &mNAME INDEX TASKS1

* Store program phase to TASK_NUM = 000000000

     IF mPHASE="A" .OR. mPHASE="a"
       REPLACE NAME WITH 'CE' FOR TASK_NUM='PRG PHASE'
     ENDIF
     IF mPHASE="B" .OR. mPHASE="b"
       REPLACE NAME WITH 'DV' FOR TASK_NUM='PRG PHASE'
     ENDIF
     IF mPHASE="C" .OR. mPHASE="c"
       REPLACE NAME WITH 'FSD' FOR TASK_NUM='PRG PHASE'
     ENDIF
     IF mPHASE="D" .OR. mPHASE="d"
       REPLACE NAME WITH 'PROD' FOR TASK_NUM='PRG PHASE'
     ENDIF

@22,1
WAIT "PRESS ANY KEY TO CONTINUE"
```

```
CLEAR

* Review all Mil-Std-1388-1A tasks, and subtasks
* Allow user to accept appropriate tasks and subtasks


* Do Task 100 subprogram

DO T100.PRG

* Do Task 101 subprogram

DO T101.PRG

STORE "F" TO mSET
DO WHILE mSET="F"
CLEAR

STORE " " TO mCHOICE

* Do Task 101 Question Subprogram

DO Q101.PRG

STORE " " TO mCHOICE

DO MENU.PRG

IF mCHOICE="Y" .OR. mCHOICE="y"
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='101.2.1'
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='101'
    STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
    REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='101.2.1'
    STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='101.2.1'
    LOCATE FOR TASK_NUM='101'
    IF APPLICABLE<>'SELECTED'
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='101'
    ENDIF
    STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
    DO M101-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
    DO G101-1.PRG
ENDIF
```

```
IF mCHOICE="F" .OR. mCHOICE="f"
   DO D101-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
   RETURN
ENDIF


ENDDO



CLEAR
STORE " " TO mCHOICE

* Do Task 101.2.2 Question Subprogram

STORE "F" TO mSET
DO WHILE mSET="F"
CLEAR

DO Q1012.PRG
DO MENU.PRG


IF mCHOICE="Y" .OR. mCHOICE="y"
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='101.2.2'
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='101'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
   REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='101.2.2'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='101.2.2'
   LOCATE FOR TASK_NUM='101'
   IF APPLICABLE<>'SELECTED'
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='101'
   ENDIF
   STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
   DO M101-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
   DO G101-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
   DO D101-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
   RETURN
ENDIF
```

```
ENDDO

CLEAR
STORE " " TO mCHOICE

* Do Task 101.2.3 Question Subprogram

STORE "F" TO mSET
DO WHILE mSET="F"
CLEAR

DO Q1013.PRG
DO MENU.PRG


IF mCHOICE="Y" .OR. mCHOICE="y"
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='101.2.3'
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='101'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
   REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='101.2.3'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='101.2.3'
   LOCATE FOR TASK_NUM='101'
   IF APPLICABLE<>'SELECTED'
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='101'
   ENDIF
   STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
   DO M101-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
   DO G101-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
   DO D101-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
   RETURN
ENDIF

ENDDO

CLEAR

* Do Task 102 Subprogram
```

```
DO T102.PRG

STORE "F" TO mSET
DO WHILE mSET="F"
CLEAR

STORE " " TO mCHOICE

* Do Task 102 Question Subprogram

DO Q102.PRG

DO MENU.PRG


IF mCHOICE="Y" .OR. mCHOICE="y"
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='102.2.1'
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='102.2.2'
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='102'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
   REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='102.2.1'
   REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='102.2.2'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='102.2.1'
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='102.2.2'
   LOCATE FOR TASK_NUM='102'
   IF APPLICABLE<>'SELECTED'
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='102'
   ENDIF
   STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
   DO M102-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
   DO G102-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
   DO D102-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
   RETURN
ENDIF

ENDDO

CLEAR
```

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```
* Do Task 103 Subprogram

DO T103.PRG

STORE "F" TO mSET
DO WHILE mSET="F"
CLEAR

STORE " " TO mCHOICE

* Do Task 103 Question Subprogram

DO Q1031.PRG

DO MENU.PRG


IF mCHOICE="Y" .OR. mCHOICE="y"
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='103.2.1'
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='103.2.2'
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='103'
    STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
    REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='103.2.1'
    REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='103.2.2'
    STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='103.2.1'
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='103.2.2'
    LOCATE FOR TASK_NUM='103'
    IF APPLICABLE<>'SELECTED'
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='103'
    ENDIF
    STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
    DO M103-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
    DO G103-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
    DO D103-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
    RETURN
ENDIF
```

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```
ENDDO

CLEAR

STORE "F" TO mSET
DO WHILE mSET="F"
CLEAR

STORE " " TO mCHOICE

* Do Task 103 Question Subprogram

DO Q1032.PRG

DO MENU.PRG


IF mCHOICE="Y" .OR. mCHOICE="y"
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='103.2.1'
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='103.2.3'
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='103'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
   LOCATE FOR TASK_NUM='103.2.1'
   IF APPLICABLE<>"SELECTED" .OR. APPLICABLE<>"UNSURE"
   REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='103.2.1'
   ENDIF
   REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='103.2.3'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
   LOCATE FOR TASK_NUM='103.2.1'
   IF APPLICABLE<>"SELECTED"
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='103.2..1'
   ENDIF
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='103.2.3'
   LOCATE FOR TASK_NUM='103'
   IF APPLICABLE<>"SELECTED"
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='103'
   ENDIF
   STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
   DO M103-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
   DO G103-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
   DO D103-1.PRG
```

```
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
   RETURN
ENDIF

ENDDO

CLEAR

STORE "F" TO mSET
DO WHILE mSET="F"
CLEAR

STORE " " TO mCHOICE

* Do Task 103 Question Subprogram

DO Q1033.PRG

DO MENU.PRG
IF mCHOICE="Y" .OR. mCHOICE="y"
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='103.2.1'
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='103.2.4'
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='103'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
   LOCATE FOR TASK_NUM='103.2.1'
   IF APPLICABLE<>"SELECTED" .OR. APPLICABLE<>"UNSURE"
   REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='103.2.1'
   ENDIF
   REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='103.2.4'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
   LOCATE FOR TASK_NUM='103.2.1'
   IF APPLICABLE<>"SELECTED"
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='103.2.1'
   ENDIF
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='103.2.4'
   LOCATE FOR TASK_NUM='103'
   IF APPLICABLE<>"SELECTED"
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='103'
   ENDIF
   STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
   DO M103-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
   DO G103-1.PRG
```

```
    ENDIF
    IF mCHOICE="F" .OR. mCHOICE="f"
        DO D103-1.PRG
    ENDIF
    IF mCHOICE="Q" .OR. mCHOICE="q"
        RETURN
    ENDIF

ENDDO

CLEAR

* Do Task 200 Subprogram

DO T200.PRG

* Do Task 201 Subprogram

DO T201.PRG

STORE " " TO mCHOICE
STORE "F" TO mSET
DO WHILE mSET="F"
CLEAR

* Do Task 201 question subprogram

DO Q2011.PRG

DO MENU.PRG

IF mCHOICE="Y" .OR. mCHOICE="y"
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='201.2.1'
    REPLACE APPLICABLE WITH 'SELECTED' FOR
TASK_NUM='201.2.2'
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='201.2.4'
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='201'
    STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
    REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='201.2.1'
    REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='201.2.2'
    REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='201.2.4'
    STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='201.2.1'
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='201.2.2'
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='201.2.4'
    LOCATE FOR TASK_NUM='201'
```

```
        IF APPLICABLE<>'SELECTED'
        REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='201'
        ENDIF
        STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
    DO M201-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
    DO G201-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
    DO D201-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
    RETURN
ENDIF


ENDDO

CLEAR
STORE "F" TO mSET
DO WHILE mSET="F"
STORE " " TO mCHOICE

DO Q2012.PRG

DO MENU.PRG

IF mCHOICE="Y" .OR. mCHOICE="y"
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='201.2.3'
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='201.2.4'
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='201'
    STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
    REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='201.2.3'
    LOCATE FOR TASK_NUM='201.2.4'
    IF APPLICABLE<>"SELECTED" .OR. APPLICABLE<>"UNSURE"
    REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='201.2.4'
    ENDIF
    STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='201.2.3'
    LOCATE FOR TASK_NUM='201.2.4'
    IF APPLICABLE<>"SELECTED"
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='201.2.4'
    ENDIF
    LOCATE FOR TASK_NUM='201'
```

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```
            IF APPLICABLE<>"SELECTED"
            REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='201'
            ENDIF
            STORE "T" TO mSET
        ENDIF
        IF mCHOICE="D" .OR. mCHOICE="d"
            DO M201-1.PRG
        ENDIF
        IF mCHOICE="E" .OR. mCHOICE="e"
            DO G201-1.PRG
        ENDIF
        IF mCHOICE="F" .OR. mCHOICE="f"
            DO D201-1.PRG
        ENDIF
        IF mCHOICE="Q" .OR. mCHOICE="q"
            RETURN
        ENDIF

        ENDDO

        CLEAR

        * Do Task 202 subprogram

        DO T202.PRG

        CLEAR

        STORE "F" TO mSET
        DO WHILE mSET="F"
        STORE " " TO mCHOICE

        DO Q2021.PRG

        DO MENU.PRG

        IF mCHOICE="Y" .OR. mCHOICE="y"
            STORE "T" TO mNEXT
            STORE "T" TO mSET
        ENDIF
        IF mCHOICE="N" .OR. mCHOICE="n"
            REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
        TASK_NUM='202.2.1'
            REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
        TASK_NUM='202.2.2'
            REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
        TASK_NUM='202.2.3'
            REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
        TASK_NUM='202.2.4'
            STORE "T" TO mSET
            STORE "F" TO mNEXT
        ENDIF
        IF mCHOICE="U" .OR. mCHOICE="u"
```

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```
         STORE "T" TO mSET
         STORE "T" TO mNEXT
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
    DO M202-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
    DO G202-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
    DO D202-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
    RETURN
ENDIF


ENDDO


* Do Task 202.2.1 Subprogram

IF mNEXT="F"

CLEAR
STORE "F" TO mSET
DO WHILE mSET="F"
STORE " " TO mCHOICE

DO Q2021.PRG

DO MENU.PRG


IF mCHOICE="Y" .OR. mCHOICE="y"
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='202.2.1'
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='202'
    STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
    REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='202.2.1'
    STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='202.2.1'

    LOCATE FOR TASK_NUM='202'
    IF APPLICABLE<>'SELECTED'
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='202'
    ENDIF
    STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
    DO M202-1.PRG
```

```
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
    DO G202-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
    DO D202-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
    RETURN
ENDIF

ENDDO

* Do Subtask 202.2.2 subprogram

CLEAR
STORE "F" TO mSET
DO WHILE mSET="F"
STORE " " TO mCHOICE

DO Q2022.PRG

DO MENU.PRG


IF mCHOICE="Y" .OR. mCHOICE="y"
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='202.2.2'
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='202'
    STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
    REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='202.2.2'
    STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='202.2.2'
    LOCATE FOR TASK_NUM='202'
    IF APPLICABLE<>'SELECTED'
    REPLACE SELECTED WITH 'UNSURE' FOR TASK_NUM='202'
    ENDIF
    STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
    DO M202-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
    DO G202-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
    DO D202-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
```

```
        RETURN
ENDIF

ENDDO

* Do Subtask 202.2.3 Subprogram

CLEAR
STORE "F" TO mSET
DO WHILE mSET="F"
STORE " " TO mCHOICE

DO Q2023.PRG

DO MENU.PRG


IF mCHOICE="Y" .OR. mCHOICE="y"
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='202.2.3'
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='202'
    STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
    REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='202.2.3'
    STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='202.2.3'
    LOCATE FOR TASK_NUM='202'
    IF APPLICABLE<>'SELECTED'
    REPLACE SELECTED WITH 'UNSURE' FOR TASK_NUM='202'
    ENDIF
    STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
    DO M202-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
    DO G202-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
    DO D202-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
    RETURN
ENDIF

ENDDO

* Do Subtask 202.2.4 Subprogram

CLEAR
```

```
STORE "F" TO mSET
DO WHILE mSET="F"
STORE " " TO mCHOICE

DO Q2024.PRG

DO MENU.PRG


IF mCHOICE="Y" .OR. mCHOICE="y"
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='202.2.4'
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='202'
    STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
    REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='202.2.4'
    STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='202.2.4'
    LOCATE FOR TASK_NUM='202'
    IF APPLICABLE<>'SELECTED'
    REPLACE SELECTED WITH 'UNSURE' FOR TASK_NUM='202'
    ENDIF
    STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
    DO M202-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
    DO G202-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
    DO D202-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
    RETURN
ENDIF

ENDDO

ENDIF

* Do Task 203 Subprogram

CLEAR

DO T203.PRG

CLEAR
STORE "F" TO mSET
DO WHILE mSET="F"
```

```
STORE " " TO mCHOICE

DO Q2031.PRG

DO MENU.PRG

IF mCHOICE="Y" .OR. mCHOICE="y"
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='203.2.1'
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='203'
    STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
    REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='203.2.1'
    STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='203.2.1'
    LOCATE FOR TASK_NUM='203'
    IF APPLICABLE<>'SELECTED'
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='203'
    ENDIF
    STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
    DO M203-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
    DO G203-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
    DO D203-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
    RETURN
ENDIF

ENDDO

* Do Subtask 203.2.2 subprogram

CLEAR
STORE "F" TO mSET
DO WHILE mSET="F"
STORE " " TO mCHOICE

DO Q2032.PRG

DO MENU.PRG


IF mCHOICE="Y" .OR. mCHOICE="y"
```

```
          REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='203.2.2'
          REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='203'
          STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
     REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='203.2.2'
     STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
     REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='203.2.2'
     LOCATE FOR TASK_NUM='203'
     IF APPLICABLE<>'SELECTED'
     REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='203'
     ENDIF
     STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
     DO M203-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
     DO G203-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
     DO D203-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
     RETURN
ENDIF

ENDDO


* Do Subtask 203.2.3 subprogram

CLEAR
STORE "F" TO mSET
DO WHILE mSET="F"
STORE " " TO mCHOICE

DO Q2033.PRG

DO MENU.PRG

IF mCHOICE="Y" .OR. mCHOICE="y"
     REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='203.2.3'
     REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='203'
     STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
     REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='203.2.3'
     STORE "T" TO mSET
ENDIF
```

```
IF mCHOICE="U" .OR. mCHOICE="u"
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='203.2.3'
   LOCATE FOR TASK_NUM='203'
   IF APPLICABLE<>'SELECTED'
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='203'
   ENDIF
   STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
   DO M203-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
   DO G203-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
   DO D203-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
   RETURN
ENDIF


ENDDO



* Do subtask 203.2.4 subprogram

CLEAR
STORE "F" TO mSET
DO WHILE mSET="F"
STORE " " TO mCHOICE

DO Q2034.PRG

DO MENU.PRG

IF mCHOICE="Y" .OR. mCHOICE="y"
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='203.2.4'
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='203'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
   REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='203.2.4'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='203.2.4'
   LOCATE FOR TASK_NUM='203'
   IF APPLICABLE<>'SELECTED'
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='203'
   ENDIF
   STORE "T" TO mSET
ENDIF
```

```
IF mCHOICE="D" .OR. mCHOICE="d"
   DO M203-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
   DO G203-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
   DO D203-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
    RETURN
ENDIF


ENDDO


* Do Subtask 203.2.5 subprogram

CLEAR
STORE "F" TO mSET
DO WHILE mSET="F"
STORE " " TO mCHOICE

DO Q2035.PRG

DO MENU.PRG

IF mCHOICE="Y" .OR. mCHOICE="y"
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='203.2.5'
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='203'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
   REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='203.2.5'
   STORE "T" TO mSET
ENDIF
.IF mCHOICE="U" .OR. mCHOICE="u"
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='203.2.5'
   LOCATE FOR TASK_NUM='203'
   IF APPLICABLE<>'SELECTED'
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='203'
   ENDIF
   STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
   DO M203-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
   DO G203-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
   DO D203-1.PRG
ENDIF
```

```
IF mCHOICE="Q" .OR. mCHOICE="q"
   RETURN
ENDIF

ENDDO

* Do Subtask 203.2.6 subprogram

CLEAR
STORE "F" TO mSET
DO WHILE mSET="F"
STORE " " TO mCHOICE

DO Q2036.PRG

DO MENU.PRG

IF mCHOICE="Y" .OR. mCHOICE="y"
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='203.2.6'
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='203'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
   REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='203.2.6'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='203.2.6'
   LOCATE FOR TASK_NUM='203'
   IF APPLICABLE<>'SELECTED'
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='203'
   ENDIF
   STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
   DO M203-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
   DO G203-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
   DO D203-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
   RETURN
ENDIF

ENDDO

* Do Subtask 203.2.7 subprogram

CLEAR
```

```
STORE "F" TO mSET
DO WHILE mSET="F"
STORE " " TO mCHOICE

DO Q2037.PRG

DO MENU.PRG


IF mCHOICE="Y" .OR. mCHOICE="y"
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='203.2.7'
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='203'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
   REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='203.2.7'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='203.2.7'
   LOCATE FOR TASK_NUM='203'
   IF APPLICABLE<>'SELECTED'
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='203'
   ENDIF
   STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
   DO M203-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
   DO G203-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
   DO D203-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
   RETURN
ENDIF

ENDDO

* Do Subtask 203.2.8 subprogram

CLEAR
STORE "F" TO mSET
DO WHILE mSET="F"
STORE " " TO mCHOICE

DO Q2038.PRG

DO MENU.PRG
```

```
IF mCHOICE="Y" .OR. mCHOICE="y"
    REPLACE APPLICABLE WITH 'SELECTED' FOR
TASK_NUM='203.2.8'
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='203'
    STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
   REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='203.2.8'
    STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='203.2.8'
    LOCATE FOR TASK_NUM='203'
    IF APPLICABLE<>'SELECTED'
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='203'
    ENDIF
    STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
    DO M203-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
    DO G203-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
    DO D203-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
    RETURN
ENDIF

ENDDO

* Do Task 204 Subprogram

CLEAR

DO T204.PRG

* Do Task 204.2.1

CLEAR
STORE "F" TO mSET
DO WHILE mSET="F"
STORE " " TO mCHOICE

DO Q2041.PRG

DO MENU.PRG

IF mCHOICE="Y" .OR. mCHOICE="y"
```

```
            REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='204.2.1'
            REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='204'
            STORE "T" TO mSET
      ENDIF
      IF mCHOICE="N" .OR. mCHOICE="n"
            REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
      TASK_NUM='204.2.1'
            STORE "T" TO mSET
      ENDIF
      IF mCHOICE="U" .OR. mCHOICE="u"
            REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='204.2.1'
            LOCATE FOR TASK_NUM='204'
            IF APPLICABLE<>'SELECTED'
            REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='204'
            ENDIF
            STORE "T" TO mSET
      ENDIF
      IF mCHOICE="D" .OR. mCHOICE="d"
            DO M204-1.PRG
      ENDIF
      IF mCHOICE="E" .OR. mCHOICE="e"
            DO G204-1.PRG
      ENDIF
      IF mCHOICE="F" .OR. mCHOICE="f"
            DO D204-1.PRG
      ENDIF
      IF mCHOICE="Q" .OR. mCHOICE="q"
            RETURN
      ENDIF

ENDDO

* Do Subtask 204.2.2 subprogram

CLEAR
STORE "F" TO mSET
DO WHILE mSET="F"
STORE " " TO mCHOICE

DO Q2042.PRG

DO MENU.PRG

IF mCHOICE="Y" .OR. mCHOICE="y"
      REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='204.2.2'
      REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='204'
      STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
      REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='204.2.2'
      STORE "T" TO mSET
ENDIF
```

```
IF mCHOICE="U" .OR. mCHOICE="u"
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='204.2.2'
    LOCATE FOR TASK_NUM='204'
    IF APPLICABLE<>'SELECTED'
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='204'
    ENDIF
    STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
    DO M204-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
    DO G204-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
    DO D204-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
    RETURN
ENDIF

ENDDO


* Do Subtask 204.2.3 Subprogram

CLEAR
STORE "F" TO mSET
DO WHILE mSET="F"
STORE " " TO mCHOICE

DO Q2043.PRG

DO MENU.PRG


IF mCHOICE="Y" .OR. mCHOICE="y"
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='204.2.3'
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='204'
    STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
    REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='204.2.3'
    STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='204.2.3'
    LOCATE FOR TASK_NUM='204'
    IF APPLICABLE<>'SELECTED'
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='204'
    ENDIF
    STORE "T" TO mSET
ENDIF
```

```
        IF mCHOICE="D" .OR. mCHOICE="d"
            DO M204-1.PRG
        ENDIF
        IF mCHOICE="E" .OR. mCHOICE="e"
            DO G204-1.PRG
        ENDIF
        IF mCHOICE="F" .OR. mCHOICE="f"
            DO D204-1.PRG
        ENDIF
        IF mCHOICE="Q" .OR. mCHOICE="q"
            RETURN
        ENDIF

    ENDDO

    CLEAR

    * Do Task 205 Subprogram

    DO T205.PRG

    CLEAR
    STORE "F" TO mSET
    DO WHILE mSET="F"
    STORE " " TO mCHOICE

    DO Q2051.PRG

    DO MENU.PRG

        IF mCHOICE="Y" .OR. mCHOICE="y"
            REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='205.2.1'
            REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='205'
            STORE "T" TO mSET
        ENDIF
        IF mCHOICE="N" .OR. mCHOICE="n"
            REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
    TASK_NUM='205.2.1'
            STORE "T" TO mSET
        ENDIF
        IF mCHOICE="U" .OR. mCHOICE="u"
            REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='205.2.1'
            LOCATE FOR TASK_NUM='205'
            IF APPLICABLE<>'SELECTED'
            REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='205'
            ENDIF
            STORE "T" TO mSET
        ENDIF
        IF mCHOICE="D" .OR. mCHOICE="d"
            DO M205-1.PRG
        ENDIF
        IF mCHOICE="E" .OR. mCHOICE="e"
            DO G205-1.PRG
```

```
      ENDIF
      IF mCHOICE="F" .OR. mCHOICE="f"
         DO D205-1.PRG
      ENDIF
      IF mCHOICE="Q" .OR. mCHOICE="q"
         RETURN
      ENDIF

      ENDDO

      * Do Subtask 205.2.2 subprogram

      CLEAR
      STORE "F" TO mSET
      DO WHILE mSET="F"
      STORE " " TO mCHOICE

      DO Q2052.PRG

      DO MENU.PRG

      IF mCHOICE="Y" .OR. mCHOICE="y"
         REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='205.2.2'
         REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='205'
         STORE "T" TO mSET
      ENDIF
      IF mCHOICE="N" .OR. mCHOICE="n"
         REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
      TASK_NUM='205.2.2'
         STORE "T" TO mSET
      ENDIF
      IF mCHOICE="U" .OR. mCHOICE="u"
         REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='205.2.2'
         LOCATE FOR TASK_NUM='205'
         IF APPLICABLE<>'SELECTED'
         REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='205'
         ENDIF
         STORE "T" TO mSET
      ENDIF
      IF mCHOICE="D" .OR. mCHOICE="d"
         DO M205-1.PRG
      ENDIF
      IF mCHOICE="E" .OR. mCHOICE="e"
         DO G205-1.PRG
      ENDIF
      IF mCHOICE="F" .OR. mCHOICE="f"
         DO D205-1.PRG
      ENDIF
      IF mCHOICE="Q" .OR. mCHOICE="q"
         RETURN
      ENDIF

      ENDDO
```

```
* Do Subtask 205.2.3 subprogram

CLEAR
STORE "F" TO mSET
DO WHILE mSET="F"
STORE " " TO mCHOICE

DO Q2053.PRG

DO MENU.PRG

IF mCHOICE="Y" .OR. mCHOICE="y"
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='205.2.3'
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='205'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
   REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='205.2.3'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='205.2.3'
   LOCATE FOR TASK_NUM='205'
   IF APPLICABLE<>'SELECTED'
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='205'
   ENDIF
   STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
   DO M205-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
   DO G205-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
   DO D205-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
   RETURN
ENDIF

ENDDO

* Do Subtask 205.2.4 subprogram

CLEAR
STORE "F" TO mSET
DO WHILE mSET="F"
STORE " " TO mCHOICE

DO Q2054.PRG
```

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```
DO MENU.PRG

IF mCHOICE="Y" .OR. mCHOICE="y"
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='205.2.4'
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='205'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
   REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='205.2.4'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='205.2.4'
   LOCATE FOR TASK_NUM='205'
   IF APPLICABLE<>'SELECTED'
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='205'
   ENDIF
   STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
   DO M205-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
   DO G205-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
   DO D205-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
   RETURN
ENDIF

ENDDO

* Do Subtask 205.2.5

CLEAR
STORE "F" TO mSET
DO WHILE mSET="F"
STORE " " TO mCHOICE

DO Q2055.PRG

DO MENU.PRG

IF mCHOICE="Y" .OR. mCHOICE="y"
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='205.2.5'
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='205'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
```

```
        REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='205.2.5'
        STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
        REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='205.2.5'
        LOCATE FOR TASK_NUM='205'
        IF APPLICABLE<>'SELECTED'
        REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='205'
        ENDIF
        STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
        DO M205-1.PRG
ENDIF
IF mCHOICE="E" .CR. mCHOICE="e"
        DO G205-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
        DO D205-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
        RETURN
ENDIF

ENDDO

* Do Subtask 205.2.6

CLEAR
STORE "F" TO mSET
DO WHILE mSET="F"
STORE " " TO mCHOICE

DO Q2056.PRG

DO MENU.PRG

IF mCHOICE="Y" .OR. mCHOICE="y"
        REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='205.2.6'
        REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='205'
        STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
        REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='205.2.6'
        STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
        REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='205.2.6'
        LOCATE FOR TASK_NUM='205'
        IF APPLICABLE<>'SELECTED'
        REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='205'
```

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```
        ENDIF
        STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
        DO M205-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
        DO G205-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
        DO D205-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
        RETURN
ENDIF


ENDDO


* Do Subtask 205.2.7


CLEAR
STORE "F" TO mSET
DO WHILE mSET="F"
STORE " " TO mCHOICE


DO Q2057.PRG


DO MENU.PRG


IF mCHOICE="Y" .OR. mCHOICE="y"
        REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='205.2.7'
        REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='205'
        STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
        REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='205.2.7'
        STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
        REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='205.2.7'
        LOCATE FOR TASK_NUM='205'
        IF APPLICABLE<>'SELECTED'
        REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='205'
        ENDIF
        STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
        DO M205-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
        DO G205-1.PRG
ENDIF
```

```
IF mCHOICE="F" .OR. mCHOICE="f"
    DO D205-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
    RETURN
ENDIF

ENDDO

* Do Task 300 Subprogram

CLEAR

DO T300.PRG

CLEAR

DO T301.PRG

CLEAR
STORE "F" TO mSET
DO WHILE mSET="F"
STORE " " TO mCHOICE

DO Q3011.PRG

DO MENU.PRG


IF mCHOICE="Y" .OR. mCHOICE="y"
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='301.2.1'
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='301.2.2'
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='301.2.3'
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='301.2.6'
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='301'
    STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
    REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='301.2.1'
    REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='301.2.2'
    REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='301.2.3'
    REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='301.2.6'
    STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='301.2.1'
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='301.2.2'
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='301.2.3'
```

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```
                REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='301.2.6'
                LOCATE FOR TASK_NUM='301'
                IF APPLICABLE<>'SELECTED'
                REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='301'
                ENDIF
                STORE "T" TO mSET
        ENDIF
        IF mCHOICE="D" .OR. mCHOICE="d"
                DO M301-1.PRG
        ENDIF
        IF mCHOICE="E" .OR. mCHOICE="e"
                DO G301-1.PRG
        ENDIF
        IF mCHOICE="F" .OR. mCHOICE="f"
                DO D301-1.PRG
        ENDIF
        IF mCHOICE="Q" .OR. mCHOICE="q"
                RETURN
        ENDIF


        ENDDO


        CLEAR
        STORE "F" TO mSET
        DO WHILE mSET="F"
        STORE " " TO mCHOICE

        DO Q3012.PRG

        DO MENU.PRG


        IF mCHOICE="Y" .OR. mCHOICE="y"
                REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='301.2.4'
                REPLACE APPLICABLE WITH 'SELECTED' FOR
        TASK_NUM='301.2.4.1'
                REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='301.2.6'
                REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='301'
                STORE "T" TO mSET
        ENDIF
        IF mCHOICE="N" .OR. mCHOICE="n"
          REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
        TASK_NUM='301.2.4'
          REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
        TASK_NUM='301.2.4.1'
          LOCATE FOR TASK_NUM='301.2.6'
          IF APPLICABLE<>'SELECTED' .OR. APPLICABLE<>'UNSURE'
          REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
        TASK_NUM='301.2.6'
          ENDIF
          STORE "T" TO mSET
        ENDIF
        IF mCHOICE="U" .OR. mCHOICE="u"
```

```
          REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='301.2.4'
          REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='301.2.4.1'
          LOCATE FOR TASK_NUM='301.2.6'
          IF APPLICABLE<>"SELECTED"
          REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='301.2.6'
          ENDIF
          LOCATE FOR TASK_NUM='301'
          IF APPLICABLE<>'SELECTED'
          REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='301'
          ENDIF
          STORE "T" TO mSET
     ENDIF
     IF mCHOICE="D" .OR. mCHOICE="d"
          DO M301-1.PRG
     ENDIF
     IF mCHOICE="E" .OR. mCHOICE="e"
          DO G301-1.PRG
     ENDIF
     IF mCHOICE="F" .OR. mCHOICE="f"
          DO D301-1.PRG
     ENDIF
     IF mCHOICE="Q" .OR. mCHOICE="q"
          RETURN
     ENDIF

     ENDDO

     CLEAR
     STORE "F" TO mSET
     DO WHILE mSET="F"
     STORE " " TO mCHOICE

     DO Q3013.PRG

     DO MENU.PRG

     IF mCHOICE="Y" .OR. mCHOICE="y"
          REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='301.2.4'
          REPLACE APPLICABLE WITH 'SELECTED' FOR
     TASK_NUM='301.2.4.2'
          REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='301.2.6'
          REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='301'
          STORE "T" TO mSET
     ENDIF
     IF mCHOICE="N" .OR. mCHOICE="n"
        LOCATE FOR TASK_NUM='301.2.4'
        IF APPLICABLE<>"SELECTED" .OR. APPLICABLE<>"UNSURE"
        REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
     TASK_NUM='301.2.4'
        ENDIF
        REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
     TASK_NUM='301.2.4.2'
        LOCATE FOR TASK_NUM='301.2.6'
```

```
      IF APPLICABLE<>"SELECTED" .OR. APPLICABLE<>"UNSURE"
      REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='301.2.6'
      ENDIF
      STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
      LOCATE FOR TASK_NUM='301.2.4'
      IF APPLICABLE<>"SELECTED" .OR. APPLICABLE<>"UNSURE"
      REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='301.2.4'
      ENDIF
      REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='301.2.4.2'
      LOCATE FOR TASK_NUM='301.2.6'
      IF APPLICABLE<>"SELECTED" .OR. APPLICABLE<>"UNSURE"
      REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='301.2.6'
      ENDIF
      LOCATE FOR TASK_NUM='301'
      IF APPLICABLE<>'SELECTED'
      REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='301'
      ENDIF
      STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
      DO M301-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
      DO G301-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
      DO D301-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
      RETURN
ENDIF

ENDDO

CLEAR
STORE "F" TO mSET
DO WHILE mSET="F"
STORE " " TO mCHOICE

DO Q3014.PRG

DO MENU.PRG

IF mCHOICE="Y" .OR. mCHOICE="y"
      REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='301.2.4'
      REPLACE APPLICABLE WITH 'SELECTED' FOR
TASK_NUM='301.2.4.3'
      REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='301.2.6'
      REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='301'
      STORE "T" TO mSET
```

```
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
   LOCATE FOR TASK_NUM='301.2.4'
   IF APPLICABLE<>"SELECTED" .OR. APPLICABLE<>"UNSURE"
   REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='301.2.4'
   ENDIF
   REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='301.2.4.3'
   LOCATE FOR TASK_NUM='301.2.6'
   IF APPLICABLE<>"SELECTED" .OR. APPLICABLE<>"UNSURE"
   REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='301.2.6'
   ENDIF
   STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
   LOCATE FOR TASK_NUM='301.2.4'
   IF APPLICABLE<>"SELECTED"
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='301.2.4'
   ENDIF
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='301.2.4.3'
   LOCATE FOR TASK_NUM='301.2.6'
   IF APPLICABLE<>"SELECTED"
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='301.2.6'
   ENDIF
   LOCATE FOR TASK_NUM='301'
   IF APPLICABLE<>'SELECTED'
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='301'
   ENDIF
   STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
   DO M301-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
   DO G301-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
   DO D301-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
   RETURN
ENDIF

ENDDO

CLEAR
STORE "F" TO mSET
DO WHILE mSET="F"
STORE " " TO mCHOICE

DO Q3015.PRG
```

```
DO MENU.PRG

IF mCHOICE="Y" .OR. mCHOICE="y"
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='301.2.5'
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='301.2.6'
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='301'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
   REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='301.2.5'
   LOCATE FOR TASK_NUM='301.2.6'
   IF APPLICABLE<>"SELECTED" .OR. APPLICABLE<>"UNSURE"
   REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='301.2.6'
   ENDIF
   STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='301.2.5'
   LOCATE FOR TASK_NUM='301.2.6'
   IF APPLICABLE<>"SELECTED"
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='301.2.6'
   ENDIF
   LOCATE FOR TASK_NUM='301'
   IF APPLICABLE<>'SELECTED'
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='301'
   ENDIF
   STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
   DO M301-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
   DO G301-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
   DO D301-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
   RETURN
ENDIF

ENDDO

CLEAR

DO T302.PRG

CLEAR
STORE "F" TO mSET
DO WHILE mSET="F"
```

```
STORE " " TO mCHOICE

DO Q3021.PRG

DO MENU.PRG

IF mCHOICE="Y" .OR. mCHOICE="y"
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='302.2.1'
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='302'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
   REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='302.2.1'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='302.2.1'
   LOCATE FOR TASK_NUM='302'
   IF APPLICABLE<>'SELECTED'
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='302'
   ENDIF
   STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
   DO M302-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
   DO G302-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
   DO D302-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
   RETURN
ENDIF

ENDDO

CLEAR
STORE "F" TO mSET
DO WHILE mSET="F"
STORE " " TO mCHOICE

DO Q3022.PRG

DO MENU.PRG

IF mCHOICE="Y" .OR. mCHOICE="y"
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='302.2.2'
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='302'
   STORE "T" TO mSET
ENDIF
```

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```
IF mCHOICE="N" .OR. mCHOICE="n"
   REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='302.2.2'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='302.2.2'
   LOCATE FOR TASK_NUM='302'
   IF APPLICABLE<>'SELECTED'
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='302'
   ENDIF
   STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
   DO M302-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
   DO G302-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
   DO D302-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
   RETURN
ENDIF

ENDDO

CLEAR
STORE "F" TO mSET
DO WHILE mSET="F"
STORE " " TO mCHOICE

DO Q3023.PRG

DO MENU.PRG

IF mCHOICE="Y" .OR. mCHOICE="y"
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='302.2.3'
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='302'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
   REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='302.2.3'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='302.2.3'
   LOCATE FOR TASK_NUM='302'
   IF APPLICABLE<>'SELECTED'
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='302'
   ENDIF
```

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```
        STORE "T" TO mSET
    ENDIF
    IF mCHOICE="D" .OR. mCHOICE="d"
        DO M302-1.PRG
    ENDIF
    IF mCHOICE="E" .OR. mCHOICE="e"
        DO G302-1.PRG
    ENDIF
    IF mCHOICE="F" .OR. mCHOICE="f"
        DO D302-1.PRG
    ENDIF
    IF mCHOICE="Q" .OR. mCHOICE="q"
        RETURN
    ENDIF

ENDDO

CLEAR
STORE "F" TO mSET
DO WHILE mSET="F"
STORE " " TO mCHOICE

DO Q3024.PRG

DO MENU.PRG

IF mCHOICE="Y" .OR. mCHOICE="y"
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='302.2.4'
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='302'
    STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
    REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='302.2.4'
    STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='302.2.4'
    LOCATE FOR TASK_NUM='302'
    IF APPLICABLE<>'SELECTED'
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='302'
    ENDIF
    STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
    DO M302-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
    DO G302-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
    DO D302-1.PRG
ENDIF
```

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```
IF mCHOICE="Q" .OR. mCHOICE="q"
   RETURN
ENDIF

ENDDO

CLEAR
STORE "F" TO mSET
DO WHILE mSET="F"
STORE " " TO mCHOICE

DO Q3025.PRG

DO MENU.PRG

IF mCHOICE="Y" .OR. mCHOICE="y"
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='302.2.5'
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='302'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
   REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='302.2.5'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM '302.2.5'
   LOCATE FOR TASK_NUM='302'
   IF APPLICABLE<>'SELECTED'
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='302'
   ENDIF
   STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
   DO M302-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
   DO G302-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
   DO D302-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
   RETURN
ENDIF

ENDDO

CLEAR

DO T303.PRG

CLEAR
```

```
STORE " " TO mCOUNT
STORE "F" TO mSET
DO WHILE mSET="F"
STORE " " TO mCHOICE

DO Q3031.PRG

DO MENU.PRG


IF mCHOICE="Y" .OR. mCHOICE="y"
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='303.2.1'
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='303.2.2'
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='303'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
   REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='303.2.1'
   REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='303.2.2'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='303.2.1'
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='303.2.2'
   LOCATE FOR TASK_NUM='303'
   IF APPLICABLE<>'SELECTED'
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='303'
   ENDIF
   STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
   DO M303-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
   DO G303-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
   DO D303-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
   RETURN
ENDIF

ENDDO

CLEAR
STORE "F" TO mSET
DO WHILE mSET="F"
STORE " " TO mCHOICE

DO Q3032.PRG
```

161

```
DO MENU.PRG


IF mCHOICE="Y" .OR. mCHOICE="y"
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='303.2.1'
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='303.2.3'
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='303'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
   LOCATE FOR TASK_NUM='303.2.1'
   IF APPLICABLE<>"SELECTED" .OR. APPLICABLE<>"UNSURE"
   REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='303.2.1'
   ENDIF
   REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='303.2.3'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
   LOCATE FOR TASK_NUM='303.2.1'
   IF APPLICABLE<>"SELECTED"
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='303.2.1'
   ENDIF
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='303.2.3'
   LOCATE FOR TASK_NUM='303'
   IF APPLICABLE<>'SELECTED'
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='303'
   ENDIF
   STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
   DO M303-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
   DO G303-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
   DO D303-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
   RETURN
ENDIF

ENDDO

CLEAR
STORE "F" TO mSET
DO WHILE mSET="F"
STORE " " TO mCHOICE

DO Q3033.PRG
```

```
DO MENU.PRG

IF mCHOICE="Y" .OR. mCHOICE="y"
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='303.2.1'
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='303.2.4'
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='303'
    STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
    LOCATE FOR TASK_NUM='303.2.1'
    IF APPLICABLE<>"SELECTED" .OR. APPLICABLE<>"UNSURE"
    REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='303.2.1'
    ENDIF
    REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='303.2.4'
    STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
    LOCATE FOR TASK_NUM='303.2.1'
    IF APPLICABLE<>"SELECTED"
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='303.2.1'
    ENDIF
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='303.2.4'
    LOCATE FOR TASK_NUM='303'
    IF APPLICABLE<>'SELECTED'
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='303'
    ENDIF
    STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
    DO M303-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
    DO G303-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
    DO D303-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
    RETURN
ENDIF

ENDDO

CLEAR
STORE "F" TO mSET
DO WHILE mSET="F"
STORE " " TO mCHOICE

DO Q3034.PRG
```

163

```
DO MENU.PRG


IF mCHOICE="Y" .OR. mCHOICE="y"
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='303.2.1'
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='303.2.5'
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='303'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
   LOCATE FOR TASK_NUM='303.2.1'
   IF APPLICABLE<>"SELECTED" .OR. APPLICABLE<>"UNSURE"
   REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='303.2.1'
   ENDIF
   REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='303.2.5'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
   LOCATE FOR TASK_NUM='303.2.1'
   IF APPLICABLE<>"SELECTED"
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='303.2.1'
   ENDIF
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='303.2.5'
   LOCATE FOR TASK_NUM='303'
   IF APPLICABLE<>'SELECTED'
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='303'
   ENDIF
   STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
   DO M303-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
   DO G303-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
   DO D303-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
   RETURN
ENDIF

ENDDO

CLEAR
STORE "F" TO mSET
DO WHILE mSET="F"
STORE " " TO mCHOICE

DO Q3035.PRG
```

164

```
DO MENU.PRG

IF mCHOICE="Y" .OR. mCHOICE="y"
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='303.2.1'
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='303.2.6'
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='303'
    STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
    LOCATE FOR TASK_NUM='303.2.1'
    IF APPLICABLE<>"SELECTED" .OR. APPLICABLE<>"UNSURE"
    REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='303.2.1'
    ENDIF
    REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='303.2.6'
    STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
    LOCATE FOR TASK_NUM='303.2.1'
    IF APPLICABLE<>"SELECTED"
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='303.2.1'
    ENDIF
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='303.2.6'
    LOCATE FOR TASK_NUM='303'
    IF APPLICABLE<>'SELECTED'
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='303'
    ENDIF
    STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
    DO M303-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
    DO G303-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
    DO D303-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
    RETURN
ENDIF

ENDDO

CLEAR
STORE "F" TO mSET
DO WHILE mSET="F"
STORE " " TO mCHOICE

DO Q3036.PRG

DO MENU.PRG
```

```
IF mCHOICE="Y" .OR. mCHOICE="y"
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='303.2.1'
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='303.2.7'
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='303'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
   LOCATE FOR TASK_NUM='303.2.1'
   IF APPLICABLE<>"SELECTED" .OR. APPLICABLE<>"UNSURE"
   REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='303.2.1'
   ENDIF
   REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='303.2.7'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
   LOCATE FOR TASK_NUM='303.2.1'
   IF APPLICABLE<>"SELECTED"
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='303.2.1'
   ENDIF
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='303.2.7'
   LOCATE FOR TASK_NUM='303'
   IF APPLICABLE<>'SELECTED'
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='303'
   ENDIF
   STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
   DO M303-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
   DO G303-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
   DO D303-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
   RETURN
ENDIF

ENDDO

CLEAR
STORE "F" TO mSET
DO WHILE mSET="F"
STORE " " TO mCHOICE

DO Q3037.PRG

DO MENU.PRG
```

```
IF mCHOICE="Y" .OR. mCHOICE="y"
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='303.2.1'
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='303.2.8'
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='303'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
   LOCATE FOR TASK_NUM='303.2.1'
   IF APPLICABLE<>"SELECTED" .OR. APPLICABLE<>"UNSURE"
   REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='303.2.1'
   ENDIF
   REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='303.2.8'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
   LOCATE FOR TASK_NUM='303.2.1'
   IF APPLICABLE<>"SELECTED"
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='303.2.1'
   ENDIF
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='303.2.8'
   LOCATE FOR TASK_NUM='303'
   IF APPLICABLE<>'SELECTED'
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='303'
   ENDIF
   STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
   DO M303-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
   DO G303-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
   DO D303-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
   RETURN
ENDIF

ENDDO

CLEAR
STORE "F" TO mSET
DO WHILE mSET="F"
STORE " " TO mCHOICE

DO Q3038.PRG

DO MENU.PRG
```

```
IF mCHOICE="Y" .OR. mCHOICE="y"
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='303.2.1'
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='303.2.9'
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='303'
    STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
    LOCATE FOR TASK_NUM='303.2.1'
    IF APPLICABLE<>"SELECTED" .OR. APPLICABLE<>"UNSURE"
    REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='303.2.1'
    ENDIF
    REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='303.2.9'
    STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
    LOCATE FOR TASK_NUM='303.2.1'
    IF APPLICABLE<>"SELECTED"
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='303.2.1'
    ENDIF
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='303.2.9'
    LOCATE FOR TASK_NUM='303'
    IF APPLICABLE<>'SELECTED'
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='303'
    ENDIF
    STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
    DO M303-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
    DO G303-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
    DO D303-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
    RETURN
ENDIF

ENDDO

CLEAR
STORE "F" TO mSET
DO WHILE mSET="F"
STORE " " TO mCHOICE

DO Q3039.PRG

DO MENU.PRG
```

```
        IF mCHOICE="Y" .OR. mCHOICE="y"
           REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='303.2.1'
           REPLACE APPLICABLE WITH 'SELECTED' FOR
        TASK_NUM='303.2.10'
           REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='303'
           STORE "T" TO mSET
        ENDIF
        IF mCHOICE="N" .OR. mCHOICE="n"
           LOCATE FOR TASK_NUM='303.2.1'
           IF APPLICABLE<>"SELECTED" .OR. APPLICABLE<>"UNSURE"
           REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
        TASK_NUM='303.2.1'
           ENDIF
           REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
        TASK_NUM='303.2.10'
           STORE "T" TO mSET
        ENDIF
        IF mCHOICE="U" .OR. mCHOICE="u"
           LOCATE FOR TASK_NUM='303.2.1'
           IF APPLICABLE<>"SELECTED"
           REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='303.2.1'
           ENDIF
           REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='303.2.10'
           LOCATE FOR TASK_NUM='303'
           IF APPLICABLE<>'SELECTED'
           REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='303'
           ENDIF
           STORE "T" TO mSET
        ENDIF
        IF mCHOICE="D" .OR. mCHOICE="d"
           DO M303-1.PRG
        ENDIF
        IF mCHOICE="E" .OR. mCHOICE="e"
           DO G303-1.PRG
        ENDIF
        IF mCHOICE="F" .OR. mCHOICE="f"
           DO D303-1.PRG
        ENDIF
        IF mCHOICE="Q" .OR. mCHOICE="q"
           RETURN
        ENDIF

        ENDDO

        CLEAR
        STORE "F" TO mSET
        DO WHILE mSET="F"
        STORE " " TO mCHOICE

        DO Q30310.PRG

        DO MENU.PRG
```

```
IF mCHOICE="Y" .OR. mCHOICE="y"
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='303.2.1'
    REPLACE APPLICABLE WITH 'SELF  IED' FOR
TASK_NUM='303.2.11'
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='303'
    STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
    LOCATE FOR TASK_NUM='303.2.1'
    IF APPLICABLE<>"SELECTED" .OR. APPLICABLE<>"UNSURE"
    REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='303.2.1'
    ENDIF
  REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='303.2.11'
    STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
    LOCATE FOR TASK_NUM='303.2.1'
    IF APPLICABLE<>"SELECTED"
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='303.2.1'
    ENDIF
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='303.2.11'
    LOCATE FOR TASK_NUM='303'
    IF APPLICABLE<>'SELECTED'
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='303'
    ENDIF
    STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
    DO M303-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
    DO G303-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
    DO D303-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
    RETURN
ENDIF

ENDDO

CLEAR
STORE "F" TO mSET
DO WHILE mSET="F"
STORE " " TO mCHOICE

DO Q30311.PRG
```

```
DO MENU.PRG

IF mCHOICE="Y" .OR. mCHOICE="y"
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='303.2.1'
   REPLACE APPLICABLE WITH 'SELECTED' FOR
TASK_NUM='303.2.12'
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='303'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
   LOCATE FOR TASK_NUM='303.2.1'
   IF APPLICABLE<>"SELECTED" .OR. APPLICABLE<>"UNSURE"
   REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='303.2.1'
   ENDIF
  REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='303.2.12'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
   LOCATE FOR TASK_NUM='303.2.1'
   IF APPLICABLE<>"SELECTED"
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='303.2.1'
   ENDIF
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='303.2.12'
   LOCATE FOR TASK_NUM='303'
   IF APPLICABLE<>'SELECTED'
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='303'
   ENDIF
   STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
   DO M303-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
   DO G303-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
   DO D303-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
   RETURN
ENDIF

ENDDO

CLEAR
STORE "F" TO mSET
DO WHILE mSET="F"
STORE " " TO mCHOICE

DO Q30312.PRG
```

```
DO MENU.PRG

IF mCHOICE="Y" .OR. mCHOICE="y"
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='303.2.1'
   REPLACE APPLICABLE WITH 'SELECTED' FOR
TASK_NUM='303.2.13'
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='303'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
   LOCATE FOR TASK_NUM='303.2.1'
   IF APPLICABLE<>"SELECTED" .OR. APPLICABLE<>"UNSURE"
   REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='303.2.1'
   ENDIF
  REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='303.2.13'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
   LOCATE FOR TASK_NUM='303.2.1'
   IF APPLICABLE<>"SELECTED"
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='303.2.1'
   ENDIF
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='303.2.13'
   LOCATE FOR TASK_NUM='303'
   IF APPLICABLE<>'SELECTED'
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='303'
   ENDIF
   STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
   DO M303-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
   DO G303-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
   DO D303-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
   RETURN
ENDIF

ENDDO

CLEAR

DO T400.PRG

CLEAR

DO T401.PRG
```

```
CLEAR
STORE "F" TO mSET
DO WHILE mSET="F"
STORE " " TO mCHOICE

DO Q4011.PRG

DO MENU.PRG


IF mCHOICE="Y" .OR. mCHOICE="y"
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='401.2.1'
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='401.2.2'
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='401'
    STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
    REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='401.2.1'
    REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='401.2.2'
    STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='401.2.1'
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='401.2.2'
    LOCATE FOR TASK_NUM='401'
    IF APPLICABLE<>'SELECTED'
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='401'
    ENDIF
    STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
    DO M401-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
    DO G401-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
    DO D401-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
    RETURN
ENDIF

ENDDO

CLEAR
STORE "F" TO mSET
DO WHILE mSET="F"
STORE " " TO mCHOICE
```

```
DO Q4012.PRG

DO MENU.PRG

IF mCHOICE="Y" .OR. mCHOICE="y"
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='401.2.3'
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='401'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
   REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='401.2.3'
   STORE "T" TO mSET
ENDIF
IF ¬CHOICE="U" .OR. mCHOICE="u"
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='401.2.3'
   LOCATE FOR TASK_NUM='401'
   IF APPLICABLE<>'SELECTED'
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='401'
   ENDIF
   STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
   DO M401-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
   DO G401-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
   DO D401-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
   RETURN
ENDIF

ENDDO

CLEAR
STORE "F" TO mSET
DO WHILE mSET="F"
STORE " " TO mCHOICE

DO Q4013.PRG

DO MENU.PRG

IF mCHOICE="Y" .OR. mCHOICE="y"
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='401.2.4'
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='401'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
```

```
        REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='401.2.4'
     STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
     REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='401.2.4'
     LOCATE FOR TASK_NUM='401'
     IF APPLICABLE<>'SELECTED'
     REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='401'
     ENDIF
     STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
     DO M401-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
     DO G401-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
     DO D401-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
     RETURN
ENDIF

ENDDO

CLEAR
STORE "F" TO mSET
DO WHILE mSET="F"
STORE " " TO mCHOICE

DO Q4014.PRG

DO MENU.PRG

IF mCHOICE="Y" .OR. mCHOICE="y"
     REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='401.2.5'
     REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='401'
     STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
     REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='401.2.5'
     STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
     REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='401.2.5'
     LOCATE FOR TASK_NUM='401'
     IF APPLICABLE<>'SELECTED'
     REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='401'
     ENDIF
     STORE "T" TO mSET
```

```
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
      DO M401-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
    DO G401-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
    DO D401-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
    RETURN
ENDIF


ENDDO

CLEAR
STORE "F" TO mSET
DO WHILE mSET="F"
STORE " " TO mCHOICE

DO Q4015.PRG

DO MENU.PRG

IF mCHOICE="Y" .OR. mCHOICE="y"
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='401.2.6'
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='401'
    STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
    REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='401.2.6'
    STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='401.2.6'
    LOCATE FOR TASK_NUM='401'
    IF APPLICABLE<>'SELECTED'
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='401'
    ENDIF
    STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
    DO M401-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
    DO G401-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
    DO D401-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
```

```
      RETURN
ENDIF

ENDDO

CLEAR
STORE "F" TO mSET
DO WHILE mSET="F"
STORE " " TO mCHOICE

DO Q4016.PRG

DO MENU.PRG

IF mCHOICE="Y" .OR. mCHOICE="y"
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='401.2.7'
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='401'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
   REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='401.2.7'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='401.2.7'
   LOCATE FOR TASK_NUM='401'
   IF APPLICABLE<>'SELECTED'
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='401'
   ENDIF
   STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
   DO M401-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
   DO G401-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
   DO D401-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
   RETURN
ENDIF

ENDDO

CLEAR
STORE "F" TO mSET
DO WHILE mSET="F"
STORE " " TO mCHOICE

DO Q4017.PRG
```

```
DO MENU.PRG

IF mCHOICE="Y" .OR. mCHOICE="y"
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='401.2.8'
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='401'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
   REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='401.2.8'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='401.2.8'
   LOCATE FOR TASK_NUM='401'
   IF APPLICABLE<>'SELECTED'
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='401'
   ENDIF
   STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
   DO M401-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
   DO G401-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
   DO D401-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
   RETURN
ENDIF

ENDDO

CLEAR
STORE "F" TO mSET
DO WHILE mSET="F"
STORE " " TO mCHOICE

DO Q4018.PRG

DO MENU.PRG

IF mCHOICE="Y" .OR. mCHOICE="y"
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='401.2.9'
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='401'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
   REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='401.2.9'
```

```
          STORE "T" TO mSET
       ENDIF
       IF mCHOICE="U" .OR. mCHOICE="u"
          REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='401.2.9'
          LOCATE FOR TASK_NUM='401'
          IF APPLICABLE<>'SELECTED'
          REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='401'
          ENDIF
          STORE "T" TO mSET
       ENDIF
       IF mCHOICE="D" .OR. mCHOICE="d"
          DO M401-1.PRG
       ENDIF
       IF mCHOICE="E" .OR. mCHOICE="e"
          DO G401-1.PRG
       ENDIF
       IF mCHOICE="F" .OR. mCHOICE="f"
          DO D401-1.PRG
       ENDIF
       IF mCHOICE="Q" .OR. mCHOICE="q"
          RETURN
       ENDIF

       ENDDO

       CLEAR
       STORE "F" TO mSET
       DO WHILE mSET="F"
       STORE " " TO mCHOICE

       DO Q4019.PRG

       DO MENU.PRG

       IF mCHOICE="Y" .OR. mCHOICE="y"
          REPLACE APPLICABLE WITH 'SELECTED' FOR
       TASK_NUM='401.2.10'
          REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='401'
          STORE "T" TO mSET
       ENDIF
       IF mCHOICE="N" .OR. mCHOICE="n"
         REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
       TASK_NUM='401.2.10'
          STORE "T" TO mSET
       ENDIF
       IF mCHOICE="U" .OR. mCHOICE="u"
          REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='401.2.10'
          LOCATE FOR TASK_NUM='401'
          IF APPLICABLE<>'SELECTED'
          REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='401'
          ENDIF
          STORE "T" TO mSET
       ENDIF
```

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```
IF mCHOICE="D" .OR. mCHOICE="d"
    DO M401-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
    DO G401-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
    DO D401-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
    RETURN
ENDIF


ENDDO


CLEAR
STORE "F" TO mSET
DO WHILE mSET="F"
STORE " " TO mCHOICE

DO Q40110.PRG

DO MENU.PRG

IF mCHOICE="Y" .OR. mCHOICE="y"
    REPLACE APPLICABLE WITH 'SELECTED' FOR
TASK_NUM='401.2.11'
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='401'
    STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
  REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='401.2.11'
    STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='401.2.11'
    LOCATE FOR TASK_NUM='401'
    IF APPLICABLE<>'SELECTED'
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='401'
    ENDIF
    STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
    DO M401-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
    DO G401-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
    DO D401-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
```

```
        RETURN
ENDIF

ENDDO

CLEAR

DO T402.PRG

CLEAR
STORE "F" TO mSET
DO WHILE mSET="F"
STORE " " TO mCHOICE

DO Q4021.PRG

DO MENU.PRG


IF mCHOICE="Y" .OR. mCHOICE="y"
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='402.2.1'
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='402'
    STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
    REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='402.2.1'
    STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='402.2.1'
    LOCATE FOR TASK_NUM='402'
    IF APPLICABLE<>'SELECTED'
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='402'
    ENDIF
    STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
    DO M402-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
    DO G402-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
    DO D402-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
    RETURN
ENDIF

ENDDO

CLEAR
```

```
STORE "F" TO mSET
DO WHILE mSET="F"
STORE " " TO mCHOICE

DO Q4022.PRG

DO MENU.PRG


IF mCHOICE="Y" .OR. mCHOICE="y"
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='402.2.2'
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='402'
    STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
    REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='402.2.2'
    STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='402.2.2'
    LOCATE FOR TASK_NUM='402'
    IF APPLICABLE<>'SELECTED'
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='402'
    ENDIF
    STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
    DO M402-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
    DO G402-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
    DO D402-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
    RETURN
ENDIF

ENDDO

CLEAR
STORE "F" TO mSET
DO WHILE mSET="F"
STORE " " TO mCHOICE

DO Q4023.PRG

DO MENU.PRG


IF mCHOICE="Y" .OR. mCHOICE="y"
```

```
          REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='402.2.3'
          REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='402'
          STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
          REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='402.2.3'
          STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
          REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='402.2.3'
          LOCATE FOR TASK_NUM='402'
          IF APPLICABLE<>'SELECTED'
          REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='402'
          ENDIF
          STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
          DO M402-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
          DO G402-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
          DO D402-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
          RETURN
ENDIF

ENDDO

CLEAR
STORE "F" TO mSET
DO WHILE mSET="F"
STORE " " TO mCHOICE

DO Q4024.PRG

DO MENU.PRG


IF mCHOICE="Y" .OR. mCHOICE="y"
          REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='402.2.4'
          REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='402'
          STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
          REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='402.2.4'
          STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
```

```
          REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='402.2.4'
          LOCATE FOR TASK_NUM='402'
          IF APPLICABLE<>'SELECTED'
          REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='402'
          ENDIF
          STORE "T" TO mSET
     ENDIF
     IF mCHOICE="D" .OR. mCHOICE="d"
          DO M402-1.PRG
     ENDIF
     IF mCHOICE="E" .OR. mCHOICE="e"
          DO G402-1.PRG
     ENDIF
     IF mCHOICE="F" .OR. mCHOICE="f"
          DO D402-1.PRG
     ENDIF
     IF mCHOICE="Q" .OR. mCHOICE="q"
          RETURN
     ENDIF


     ENDDO


     CLEAR
     STORE "F" TO mSET
     DO WHILE mSET="F"
     STORE " " TO mCHOICE

     DO Q4025.PRG

     DO MENU.PRG


     IF mCHOICE="Y" .OR. mCHOICE="y"
          REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='402.2.5'
          REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='402'
          STORE "T" TO mSET
     ENDIF
     IF mCHOICE="N" .OR. mCHOICE="n"
          REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
     TASK_NUM='402.2.5'
          STORE "T" TO mSET
     ENDIF
     IF mCHOICE="U" .OR. mCHOICE="u"
          REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='402.2.5'
          LOCATE FOR TASK_NUM='402'
          IF APPLICABLE<>'SELECTED'
          REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='402'
          ENDIF
          STORE "T" TO mSET
     ENDIF
     IF mCHOICE="D" .OR. mCHOICE="d"
          DO M402-1.PRG
     ENDIF
```

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```
IF mCHOICE="E" .OR. mCHOICE="e"
   DO G402-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
   DO D402-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
   RETURN
ENDIF


ENDDO

CLEAR

DO T403.PRG

CLEAR
STORE "F" TO mSET
DO WHILE mSET="F"
STORE "  " TO mCHOICE

DO Q4031.PRG

DO MENU.PRG


IF mCHOICE="Y" .OR. mCHOICE="y"
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='403.2'
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='403'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
   REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='403.2'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='403.2'
   LOCATE FOR TASK_NUM='403'
   IF APPLICABLE<>'SELECTED'
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='403'
   ENDIF
   STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
   DO M403-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
   DO G403-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
   DO D403-1.PRG
ENDIF
```

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```
    IF mCHOICE="Q" .OR. mCHOICE="q"
        RETURN
    ENDIF

    ENDDO

    CLEAR

    DO T500.PRG

    CLEAR

    DO T501.PRG

    CLEAR
    STORE "F" TO mSET
    DO WHILE mSET="F"
    STORE " " TO mCHOICE

    DO Q5011.PRG

    DO MENU.PRG


    IF mCHOICE="Y" .OR. mCHOICE="y"
        REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='501.2.1'
        REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='501'
        STORE "T" TO mSET
    ENDIF
    IF mCHOICE="N" .OR. mCHOICE="n"
        REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
    TASK_NUM='501.2.1'
        STORE "T" TO mSET
    ENDIF
    IF mCHOICE="U" .OR. mCHOICE="u"
        REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='501.2.1'
        LOCATE FOR TASK_NUM='501'
        IF APPLICABLE<>'SELECTED'
        REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='501'
        ENDIF
        STORE "T" TO mSET
    ENDIF
    IF mCHOICE="D" .OR. mCHOICE="d"
        DO M501-1.PRG
    ENDIF
    IF mCHOICE="E" .OR. mCHOICE="e"
        DO G501-1.PRG
    ENDIF
    IF mCHOICE="F" .OR. mCHOICE="f"
        DO D501-1.PRG
    ENDIF
    IF mCHOICE="Q" .OR. mCHOICE="q"
        RETURN
```

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```
      ENDIF

      ENDDO

      CLEAR
      STORE "F" TO mSET
      DO WHILE mSET="F"
      STORE " " TO mCHOICE

      DO Q5012.PRG

      DO MENU.PRG


      IF mCHOICE="Y" .OR. mCHOICE="y"
         REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='501.2.2'
         REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='501'
         STORE "T" TO mSET
      ENDIF
      IF mCHOICE="N" .OR. mCHOICE="n"
         REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
      TASK_NUM='501.2.2'
         STORE "T" TO mSET
      ENDIF
      IF mCHOICE="U" .OR. mCHOICE="u"
         REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='501.2.2'
         LOCATE FOR TASK_NUM='501'
         IF APPLICABLE<>'SELECTED'
         REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='501'
         ENDIF
         STORE "T" TO mSET
      ENDIF
      IF mCHOICE="D" .OR. mCHOICE="d"
         DO M501-1.PRG
      ENDIF
      IF mCHOICE="E" .OR. mCHOICE="e"
         DO G501-1.PRG
      ENDIF
      IF mCHOICE="F" .OR. mCHOICE="f"
         DO D501-1.PRG
      ENDIF
      IF mCHOICE="Q" .OR. mCHOICE="q"
         RETURN
      ENDIF

      ENDDO

      CLEAR
      STORE "F" TO mSET
      DO WHILE mSET="F"
      STORE " " TO mCHOICE

      DO Q5013.PRG
```

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```
DO MENU.PRG


IF mCHOICE="Y" .OR. mCHOICE="y"
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='501.2.3'
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='501'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
   REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='501.2.3'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='501.2.3'
   LOCATE FOR TASK_NUM='501'
   IF APPLICABLE<>'SELECTED'
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='501'
   ENDIF
   STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
   DO M501-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
   DO G501-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
   DO D501-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
   RETURN
ENDIF

ENDDO

CLEAR
STORE "F" TO mSET
DO WHILE mSET="F"
STORE " " TO mCHOICE

DO Q5014.PRG

DO MENU.PRG


IF mCHOICE="Y" .OR. mCHOICE="y"
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='501.2.4'
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='501'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
```

```
        REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='501.2.4'
    STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='501.2.4'
    LOCATE FOR TASK_NUM='501'
    IF APPLICABLE<>'SELECTED'
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='501'
    ENDIF
    STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
    DO M501-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
    DO G501-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
    DO D501-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
    RETURN
ENDIF

ENDDO

CLEAR
STORE "F" TO mSET
DO WHILE mSET="F"
STORE " " TO mCHOICE

DO Q5015.PRG

DO MENU.PRG


IF mCHOICE="Y" .OR. mCHOICE="y"
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='501.2.5'
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='501'
    STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
    REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='501.2.5'
    STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='501.2.5'
    LOCATE FOR TASK_NUM='501'
    IF APPLICABLE<>'SELECTED'
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='501'
    ENDIF
```

```
          STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
          DO M501-1.PRG
ENDIF
IF mCHOICE="E" .OR.  mCHOICE="e"
          DO G501-1.PRG
ENDIF
IF mCHOICE="F" .OR.  mCHOICE="f"
          DO D501-1.PRG
ENDIF
IF mCHOICE="Q" .OR.  mCHOICE="q"
          RETURN
ENDIF

ENDDO

CLEAR
STORE "F" TO mSET
DO WHILE mSET="F"
STORE " " TO mCHOICE

DO Q5016.PRG

DO MENU.PRG


IF mCHOICE="Y" .OR. mCHOICE="y"
          REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='501.2.6'
          REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='501'
          STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
          REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='501.2.6'
          STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
          REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='501.2.6'
          LOCATE FOR TASK_NUM='501'
          IF APPLICABLE<>'SELECTED'
          REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='501'
          ENDIF
          STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
          DO M501-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
          DO G501-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
          DO D501-1.PRG
```

```
        ENDIF
        IF mCHOICE="Q" .OR. mCHOICE="q"
            RETURN
        ENDIF

    ENDDO

    CLOSE DATABASES
    RETURN
```

```
* TITLE. REVUP.PRG
* DATE: 25 JULY 1989
* PROGRAMMER: Capt Michael G. Heffner, AFIT/LSG (GAL-89S)

CLEAR
TEXT

           LSA MIL-STD-1388-1A TASK AND SUBTASK SELECTION

                      DECISION SUPPORT SYSTEM

PURPOSE:  This module will allow you to review and update
tasks and subtasks that have been previously
selected/non-selected during application of the selection
portion (selection "C") of this decision support system

ENDTEXT
@22,1
WAIT
CLEAR


* Generate a directory of current program files

STORE " " TO mDDD
STORE " " TO mDD

DO WHILE .T.

    @2,1 TO 7,79 DOUBLE
    @4,5 SAY "DO YOU WANT A LISTING OF CURRENT PROGRAM
FILES?"
    @5,5 SAY "[Y] YES;  [N] NO" GET mDDD
    @5,24 SAY "PRESS ENTER"
    READ

    IF mDDD="Y" .OR. mDDD="y"

        STORE "F" TO mSET

        DO WHILE mSET="F"

        CLEAR

        @2,1 TO 9,79 DOUBLE
        @3,25 SAY "DIRECTORY OF CURRENT PROGRAM FILES"
        @5,5 SAY "ON WHICH DISK DRIVE DO YOU STORE PROGRAM
FILES?";
        GET mDD
```

```
            @5,57 SAY "AND PRESS RETURN"
            READ
            CLEAR

                IF mDD="A" .OR. mDD="a"
                    DIR A:*.DBF
                    STORE "T" TO mSET
                ENDIF

                IF mDD="B" .OR. mDD="b"
                    DIR B:*.DBF
                    STORE "T" TO mSET
                ENDIF

                IF mDD="C" .OR. mDD="c"
                    DIR C:*.DBF
                    STORE "T" TO mSET
                ENDIF

                IF mDD="D" .OR. mDD="d"
                    DIR D:*.DBF
                    STORE "T" TO mSET
                ENDIF

                ENDDO
                @22,1
                WAIT "PRESS ANY KEY TO CONTINUE"
                CLEAR
                EXIT

            ENDIF

            IF mDDD="N" .OR. mDDD="n"
                CLEAR
                EXIT
            ENDIF

    ENDDO
    CLEAR

    * Generate menu to enter program name

    STORE SPACE(12) TO mNAME

    @2,5 TO 11,65 DOUBLE
    @1,7 TO 3,63 DOUBLE
    @2,8 SAY "          ENTER THE NAME OF YOUR PROGRAM          "
    @5,7 SAY "IMPORTANT! PLEASE READ THE FOLLOWING MESSAGE:"
    @6,7 SAY "MAKE SURE FILE NAME IS NO LONGER THAN EIGHT (8)"
    @7,7 SAY "CHARACTERS LONG AND ENDS WITH .DBF"
    @8,7 SAY "EXAMPLE: SAMPLES.DBF"
    @10,15 SAY "ENTER PROGRAM NAME AND PRESS RETURN" GET mNAME
```

```
READ

CI EAR

USE &mNAME INDEX TASKS1

CLEAR

STORE " " TO mPHASE

LOCATE FOR TASK_NUM='PRG PHASE'

IF TASK_NUM='PRG PHASE'.AND.NAME='CE'
   STORE "A" TO mPHASE
ELSE
   IF TASK_NUM='PRG PHASE'.AND.NAME='DV'
      STORE "B" TO mPHASE
   ELSE
      IF TASK_NUM='PRG PHASE'.AND.NAME='FSD'
         STORE "C" TO mPHASE
      ELSE
         IF TASK_NUM='PRG PHASE'.AND.NAME='PROD'
           STORE "D" TO mPHASE
         ENDIF
      ENDIF
   ENDIF
ENDIF


* Review all Mil-Std-1388-1A tasks, and subtasks
* Allow user to accept appropriate tasks and subtasks

TEXT

          REVIEW AND SELECTION OF MIL-STD-1388-1A TASKS


In this sectic : you may review and update any tasks or
subtasks of Mil-Std-1388-1A.  A series of menus allow you to
review any task or subtask in any order.  When you are
finished, simply quit and all of your changes will be saved.


ENDTEXT
@22,1
WAIT
CLEAR

* Create Task Section Selection menu


STORE "F" TO mSET1
DO WHILE mSET1="F"
```

```
STORE " " TO mCHOICER

@1,2 TO 22,79 DOUBLE
@2,20 SAY "MIL-STD-1388-1A TASK SECTIONS"
@5,5 SAY "[A] - TASK SECTION 100 - PROGRAM PLANNING AND
CONTROL"
@7,5 SAY "[B] - TASK SECTION 200 - MISSION AND SUPPORT
SYSTEM"
@8,5 SAY "         DEFINITION"
@10,5 SAY "[C] - TASK SECTION 300 - PREPARATION AND
EVALUATION"
@11,5 SAY "       OF ALTERNATIVES"
@13,5 SAY "[D] - TASK SECTION 400 - DETERMINATION OF
LOGISTIC"
@14,5 SAY "        SUPPORT RESOURCE REQUIREMENTS"
@16,5 SAY "[E] - TASK SECTION 500 - SUPPORTABILITY
ASSESSMENT"
@18,5 SAY "[Q] - QUIT AND RETURN TO MAIN MENU "
@20,5 SAY "ENTER YOUR CHOICE AND PRESS RETURN" GET mCHOICER


READ
CLEAR


    IF mCHOICER="A" .OR. mCHOICER="a"
       DO T100.PRG
       CLEAR
       DO REVUP1.PRG
    ENDIF
    IF mCHOICER="B" .OR. mCHOICER="b"
       DO T200.PRG
       CLEAR
       DO REVUP2.PRG
    ENDIF
    IF mCHOICER="C" .OR. mCHOICER="c"
       DO T300.PRG
       CLEAR
       DO REVUP3.PRG
    ENDIF
    IF mCHOICER="D" .OR. mCHOICER="d"
       DO T400.PRG
       CLEAR
       DO REVUP4.PRG
    ENDIF
    IF mCHOICER="E" .OR. mCHOICER="e"
       DO T500.PRG
       CLEAR
       DO REVUP5.PRG
    ENDIF
    IF mCHOICER="Q" .OR. mCHOICER="q"
       CLOSE DATABASES
```

```
        CLEAR
        RETURN
    ENDIF
ENDDO

CLEAR
CLOSE DATABASES
RETURN


* PROGRAM: REVUP1.PRG
* DATE: 25 JULY 1989
* PROGRAMMER: Capt Michael Heffner, AFIT/LSG (89S-GAL)

* Create Task Section Selection menu

DO WHILE .T.

STORE " " TO mTASC

@1,2 TO 22,79 DOUBLE
@2,20 SAY "MIL-STD-1388-1A TASK SECTIONS"
@5,5 SAY "[A] - TASK 101 - DEVELOPMENT OF AN EARLY LSA
STRATEGY"
@7,5 SAY "[B] - TASK 102 - LOGISTIC SUPPORT ANALYSIS PLAN"
@9,5 SAY "[C] - TASK 103 - PROGRAM AND DESIGN REVIEWS"
@11,5 SAY "[Q] - QUIT AND RETURN TO TASK SECTION MENU "
@20,5 SAY "ENTER YOUR CHOICE AND PRESS RETURN" GET mTASC

READ

    IF mTASC="A" .OR. mTASC="a"
        DO REVUP101.PRG
        CLEAR
    ENDIF
    IF mTASC="B" .OR. mTASC="b"
        DO REVUP102.PRG
        CLEAR
    ENDIF
    IF mTASC="C" .OR. mTASC="c"
        DO REVUP103.PRG
        CLEAR
    ENDIF
    IF mTASC="Q" .OR. mTASC="q"
        CLEAR
        EXIT
    ENDIF
ENDDO
RETURN

* PROGRAM: REVUP101.PRG
* PROGRAMMER: Capt. Michael G. Heffner, AFIT/LSG (GAL-89S)
* DATE: 23 JULY 1989
```

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```
DO WHILE .T.

CLEAR

* Do Task 101 subprogram

DO T101.PRG

STORE "F" TO mSET
DO WHILE mSET="F"
CLEAR

STORE " " TO mCHOICE

* Do Task 101 Question Subprogram

DO Q101.PRG

STORE " " TO mCHOICE

DO MENU.PRG

IF mCHOICE="Y" .OR. mCHOICE="y"
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='101.2.1'
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='101'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
   REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='101.2.1'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='101.2.1'
   LOCATE FOR TASK_NUM='101'
   IF APPLICABLE<>'SELECTED'
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='101'
   ENDIF
   STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
   DO M101-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
   DO G101-1.PRG
ENDIF
IF mCHOICE="F" .OR "mCHOICE=f"
   DO D101-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
   RETURN
ENDIF
```

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```
ENDDO

CLEAR
STORE " " TO mCHOICE

* Do Task 101.2.2 Question Subprogram

STORE "F" TO mSET
DO WHILE mSET="F"
CLEAR

DO Q1012.PRG
DO MENU.PRG


IF mCHOICE="Y" .OR. mCHOICE="y"
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='101.2.2'
   REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='101'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
   REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='101.2.2'
   STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='101.2.2'
   LOCATE FOR TASK_NUM='101
   IF APPLICABLE<>'SELECTED'
   REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='101'
   ENDIF
   STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
   DO M101-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
   DO G101-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
   DO D101-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
   RETURN
ENDIF

ENDDO

CLEAR
STORE " " TO mCHOICE

* Do Task 101.2.3 Question Subprogram
```

```
STORE "F" TO mSET
DO WHILE mSET="F"
CLEAR

DO Q1013.PRG
DO MENU.PRG


IF mCHOICE="Y" .OR. mCHOICE="y"
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='101.2.3'
    REPLACE APPLICABLE WITH 'SELECTED' FOR TASK_NUM='101'
    STORE "T" TO mSET
ENDIF
IF mCHOICE="N" .OR. mCHOICE="n"
    REPLACE APPLICABLE WITH 'NOT SELECTED' FOR
TASK_NUM='101.2.3'
    STORE "T" TO mSET
ENDIF
IF mCHOICE="U" .OR. mCHOICE="u"
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='101.2.3'
    LOCATE FOR TASK_NUM='101'
    IF APPLICABLE<>'SELECTED'
    REPLACE APPLICABLE WITH 'UNSURE' FOR TASK_NUM='101'
    ENDIF
    STORE "T" TO mSET
ENDIF
IF mCHOICE="D" .OR. mCHOICE="d"
    DO M101-1.PRG
ENDIF
IF mCHOICE="E" .OR. mCHOICE="e"
    DO G101-1.PRG
ENDIF
IF mCHOICE="F" .OR. mCHOICE="f"
    DO D101-1.PRG
ENDIF
IF mCHOICE="Q" .OR. mCHOICE="q"
    RETURN
ENDIF
ENDDO
CLEAR
RETURN
ENDDO
```

```
*   PROGRAM: PRINTIT.PRG
*   PROGRAMMER: Capt. Michael G. Heffner, AFIT/LSG (GAL-89S)
*   DATE: 19 JULY 1989

CLEAR

*  Generate Introduction

TEXT

              LSA MIL-STD-1388-1A TASK AND SUBTASK SELECTION

                        DECISION SUPPORT SYSTEM

PURPOSE:   This module will allow you to obtain a printed
output of the LSA tasks selected for your acquisition
program.

ENDTEXT
@22,1
WAIT
CLEAR

* Generate a directory of current program files

STORE " " TO mDDD
STORE " " TO mDD

DO WHILE .T.

    @2,1 TO 7,79 DOUBLE
    @4,5 SAY "DO YOU WANT A LISTING OF CURRENT PROGRAM
FILES?"
    @5,5 SAY "[Y] YES;  [N] NO" GET mDDD
    @5,24 SAY "PRESS ENTER"
    READ

    IF mDDD="Y" .OR. mDDD="y"

        STORE "F" TO mSET

        DO WHILE mSET="F"

        CLEAR

        @2,1 TO 9,79 DOUBLE
        @3,25 SAY "DIRECTORY OF CURRENT PROGRAM FILES"
```

```
        @5,5 SAY "ON WHICH DISK DRIVE DO YOU STORE PROGRAM
FILES?";
        GET mDD
        @5,57 SAY "AND PRESS RETURN"
        READ
        CLEAR

          IF mDD="A" .OR. mDD="a"
             DIR A:*.DBF
             STORE "T" TO mSET
          ENDIF

          IF mDD="B" .OR. mDD="b"
             DIR B:*.DBF
             STORE "T" TO mSET
          ENDIF

          IF mDD="C" .OR. mDD="c"
             DIR C:*.DBF
             STORE "T" TO mSET
          ENDIF

          IF mDD="D" .OR. mDD="d"
             DIR D:*.DBF
             STORE "T" TO mSET
          ENDIF

          ENDDO
          @22,1
          WAIT "PRESS ANY KEY TO CONTINUE"
          CLEAR
          EXIT

      ENDIF

      IF mDDD="N" .OR. mDDD="n"
          CLEAR
          EXIT
      ENDIF

ENDDO
CLEAR

* Generate menu to enter program name

STORE SPACE(12) TO mNAME

@2,5 TO 11,65 DOUBLE
@1,7 TO 3,63 DOUBLE
@2,8 SAY "          ENTER THE NAME OF YOUR PROGRAM                    "
@5,7 SAY "IMPORTANT! PLEASE READ THE FOLLOWING MESSAGE:"
@6,7 SAY "MAKE SURE FILE NAME IS NO LONGER THAN EIGHT (8)"
@7,7 SAY "CHARACTERS LONG AND ENDS WITH .DBF"
```

```
@8,7 SAY "EXAMPLE: SAMPLES.DBF"
@10,15 SAY "ENTER PROGRAM NAME AND PRESS RETURN" GET mNAME

READ

CLEAR


USE &mNAME INDEX TASKS1

CLEAR

STORE " " TO mPHASE              .

LOCATE FOR TASK_NUM='PRG PHASE'

IF TASK_NUM='PRG PHASE'.AND.NAME='CE'
   STORE "A" TO mPHASE
ELSE
   IF TASK_NUM='PRG PHASE'.AND.NAME='DV'
      STORE "B" TO mPHASE
   ELSE
      IF TASK_NUM='PRG PHASE'.AND.NAME='FSD'
         STORE "C" TO mPHASE
      ELSE
         IF TASK_NUM='PRG PHASE'.AND.NAME='PROD'
           STORE "D" TO mPHASE
         ENDIF
      ENDIF
   ENDIF
ENDIF


* Allow user to select print options

CLEAR

* Create Task Section Selection menu

DO WHILE .T.

STORE " " TO mCHOICER

SET PRINT OFF

@1,2 TO 22,79 DOUBLE
@2,20 SAY "MIL-STD-1388-1A TASK SECTIONS"
@5,5 SAY "[A] - LIST ALL MIL-STD-1388-1A LSA TASKS AND"
@6,5 SAY "        THEIR CURRENT STATUS"
@8,5 SAY "[B] - LIST ONLY SELECTED MIL-STD-1388-1A LSA
TASKS"
@10,5 SAY "[C] - LIST MIL-STD-1388-1A LSA TASKS WITH AN"
@11,5 SAY "        UNSURE STATUS"
```

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```
@13,5 SAY "[Q] - QUIT AND RETURN TO MAIN MENU "
^20,5 SAY "ENTER YOUR CHOICE AND PRESS RETURN" GET mCHOICER

READ

CLEAR

STORE " " TO mWHAT

IF mCHOICER="Q" .OR. mCHOICER="q"

   CLEAR

ELSE

@1,2 TO 7,79 DOUBLE
@3,5 SAY "DO YOU WANT OUTPUT SENT TO PRINTER? (Y/N)" GET
mWHAT
@3,50 SAY "PRESS ENTER"
READ

IF mWHAT="Y" .OR. mWHAT="y"
   SET PRINT ON
ELSE
   SET PRINT OFF
   SET DEVICE TO SCREEN
ENDIF

ENDIF

CLEAR


DO CASE
   CASE mCHOICER="A" .OR. mCHOICER="a"

      GOTO TOP

      IF mWHAT="Y" .OR. mWHAT="y"

         REPORT FORM C:PRINTIT.FRM

         SET PRINT OFF

      ELSE

         STORE 1 TO mLINE

         DO WHILE .NOT. EOF()

            IF mLINE < 8
```

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```
                    @2,20 SAY "MIL-STD-1388-1A LSA TASKS"
                    @4,2 SAY "LSA TASK"
                    @5,2 SAY " NUMBER"
                    @5,12 SAY "LSA TASK NAME"
                    @5,56 SAY "STATUS"
                    @6,2 SAY "-------"
                    @6,12 SAY
"------------------------------------------"
                    @6,56 SAY "------"


                    STORE 8 TO mLINE

                    ENDIF

                    IF mLINE <=20

                    @ mLINE,2 SAY TASK_NUM
               @ mLINE,12 SAY NAME
                    @ mLINE,56 SAY APPLICABLE

                    ENDIF

                    STORE MLINE+1 TO MLINE

                    IF MLINE=21
                       @22,1
                          WAIT
                          CLEAR

                       STORE 1 TO MLINE

                    ENDIF

                    SKIP

                 ENDDO

                 @22,1
                 WAIT

                 CLEAR


        CASE mCHOICER="B"   .OR. mCHOICER="b"

            GOTO TOP

            IF mWHAT="Y" .OR. mWHAT="y"

                REPORT FORM C:PRINTIT.FRM FOR APPLICABLE='SELECTED'
```

```
                SET PRINT OFF

        ELSE

            STORE 1 TO mLINE

            DO WHILE .NOT. EOF()

                IF mLINE < 8

                @2,20 SAY "MIL-STD-1388-1A LSA TASKS"
                @4,2 SAY "LSA TASK"
                @5,2 SAY " NUMBER"
                @5,12 SAY "LSA TASK NAME"
                @5,56 SAY "STATUS"
                @6,2 SAY "-------"
                @6,12 SAY
"----------------------------------------"
                @6,56 SAY "------"


                STORE 8 TO mLINE

                ENDIF

                IF mLINE <=20

                IF APPLICABLE='SELECTED'

                @ mLINE,2 SAY TASK_NUM
        @ mLINE,12 SAY NAME
                @ mLINE,56 SAY APPLICABLE

                STORE MLINE+1 TO MLINE

                ENDIF

                ENDIF


                IF MLINE=21
                    @22,1
                        WAIT
                        CLEAR

                    STORE 1 TO MLINE

                ENDIF

                SKIP
```

```
        ENDDO

        @22,1
        WAIT

        CLEAR


    CASE mCHOICER="C" .OR. mCHOICER="c"

        GOTO TOP

        IF mWHAT="Y" .OR. mWHAT="y"

            REPORT FORM C:PRINTIT.FRM FOR APPLICABLE='UNSURE'

            SET PRINT OFF

        ELSE

            STORE 1 TO mLINE

            DO WHILE .NOT. EOF()

                IF mLINE < 8

                @2,20 SAY "MIL-STD-1388-1A LSA TASKS"
                @4,2 SAY "LSA TASK"
                @5,2 SAY " NUMBER"
                @5,12 SAY "LSA TASK NAME"
                @5,56 SAY "STATUS"
                @6,2 SAY "-------"
                @6,12 SAY
"-------------------------------------------"
                @6,56 SAY "------"


                STORE 8 TO mLINE

                ENDIF

                IF mLINE <=20

                IF APPLICABLE='UNSURE'

                @ mLINE,2 SAY TASK_NUM
            @ mLINE,12 SAY NAME
                @ mLINE,56 SAY APPLICABLE

                STORE MLINE+1 TO MLINE

                ENDIF
```

```
                ENDIF


            IF MLINE=21
               @22,1
                 WAIT
                 CLEAR
             STORE 1 TO MLINE

            ENDIF

            SKIP

         ENDDO

         @22,1
         WAIT
         CLEAR

      CASE mCHOICER="Q" .OR. mCHOICER="q"

         SET PRINT OFF
         CLOSE DATABASES
         CLEAR
         RETURN
   ENDCASE
   ENDDO
   CLEAR
   CLOSE DATABASES
   RETURN
```

```
*   PROGRAM:   LLEARN.PRG
*   PROGRAMMER: Capt. Michael G. Heffner, AFIT/LSG (GAL-89S)
*   DATE: 17 JUN 89

CLEAR
@1,1
TEXT
                    LSA LESSONS LEARNED

This portion of the program contains the AFALC LSA Lessons
Learned from the LSA Lessons Learned Bulletin (as of July
1988).

As in the AFALC LSA Lessons Learned Bulletin, the lessons
learned are grouped into three categories: (1)   LSA
Application, (2) LSAR Data Management, and (3)   Logistics
Considerations.

ENDTEXT
@22,1
WAIT
CLEAR
TEXT
                    LSA LESSONS LEARNED

The purpose of the AFALC corporate memory bank of lessons
learned is to provide feedback for improving our acquisition
programs.   The lessons included in this program are a small
portion of lessons learned available through AFALC.   Contact
AFACL/LSL, WPAFB, OH  45433-500, AUTOVON 785-3163 to verify
the currency of the lessons learned in this program, and to
access other lessons learned.

The Lessons Learned files are in ASCI II format, therefore,
if you want a copy of any of the lessons learned simply
print them from MS-DOS as follows: PRINT A:LL1713.TXT.   The
proper number can be found in the parenthesis following the
title on the selection menus.

NOTE:   IN ORDER TO READ THE LESSONS LEARNED, THE LESSONS
LEARNED DISK MUST BE IN THE A: DRIVE!!!

ENDTEXT
@22,1
WAIT
CLEAR
DO LLSCRN1.PRG
```

```
CLEAR ALL
RETURN
*  PROGRAM: LLSCRN1.PRG
*  PROGRAMMER: Capt. Michael G. Heffner, AFIT/LSG (GAL-89S)
*  DATE: 17 JUN 89

CLEAR
STORE "T" TO mSET
DO WHILE mSET="T"

@1,1 TO 16,79

@2,5 SAY "                LESSONS LEARNED (I) LSA APPLICATION"
@4,5 SAY "  (1)  REPAIR LEVEL ANALYSIS (0458)"
@5,5 SAY "  (2)  TIMELY HARDNESS CRITICAL REQUIREMENTS
(1132)"
@6,5 SAY "  (3)  LOGISTICS SUPPORT ANALYSIS/LOGISTICS"
@7,5 SAY "         SUPPORT ANALYSIS   RECORD (LSA/LSAR) (1158)"
@8,5 SAY "  (4)  GOVERNMENT SUBMITTAL OF LOGISTICS SUPPORT"
@9,5 SAY "         ANALYSIS (LSA) DATA RECORD A TO
CONTRACTORS"
@10,5 SAY "         PRIOR TO FULL SCALE DEVELOPMENT (FSD)
CONTRACT"
@11,5 SAY "         AWARD   (1308)"
@12,5 SAY "  (5)  LOGISTICS SUPPORT ANALYSIS (LSA)
CONTRACTUAL"
@13,5 SAY "         PROVISIONS (1373)"
@14,5 SAY "  (6)  LSA REVIEWS (1442)"
@15,5 SAY "  (7)  REQUEST FOR PROPOSAL (RFP) REQUIREMENTS
(1493)"

STORE " " TO mCHOICE
STORE "   " TO mLNUM

@17,2 TO 20,78 DOUBLE
@18,4 SAY "[A] PAGE UP; [B] PAGE DOWN; [C] REVIEW A LESSON;"
@18,53 SAY "[Q] RETURN TO"
@19,4 SAY "MAIN MENU: ENTER CHOICE AND PRESS ENTER" GET
mCHOICE

READ

IF mCHOICE="A" .OR. mCHOICE="a"

     @22,2
     WAIT "THERE ARE NO PREVIOUS LESSONS LEARNED (PRESS
ENTER)"
     CLEAR

ENDIF

IF mCHOICE="B" .OR. mCHOICE="b"
```

```
        CLEAR
        DO LLSCRN2.PRG

ENDIF

IF mCHOICE="C" .OR. mCHOICE="c"

        @22,2 SAY "ENTER LESSON NUMBER AND PRESS ENTER" GET
mLNUM
        READ
        CLEAR


    IF mLNUM="1"
     !TYPE A:LL0458.TXT | MORE
     WAIT "PRESS ENTER TO RETURN TO PREVIOUS MENU"
     CLOSE ALTERNATE
     ENDIF
    IF mLNUM="2"
     !TYPE A:LL1132.TXT | MORE
     WAIT "PRESS ENTER TO RETURN TO PREVIOUS MENU"
     CLOSE ALTERNATE
     ENDIF
    IF mLNUM="3"
     !TYPE A:LL1158.TXT | MORE
     WAIT "PRESS ENTER TO RETURN TO PREVIOUS MENU"
     CLOSE ALTERNATE
     ENDIF
    IF mLNUM="4"
     !TYPE A:LL1308.TXT | MORE
     WAIT "PRESS ENTER TO RETURN TO PREVIOUS MENU"
     CLOSE ALTERNATE
     ENDIF
    IF mLNUM="5"
     !TYPE A:LL1373.TXT | MORE
     WAIT "PRESS ENTER TO RETURN TO PREVIOUS MENU"
     CLOSE ALTERNATE
     ENDIF
    IF mLNUM="6"
     !TYPE A:LL1442.TXT | MORE
     WAIT "PRESS ENTER TO RETURN TO PREVIOUS MENU"
     CLOSE ALTERNATE
     ENDIF
    IF mLNUM="7"
     !TYPE A:LL1493.TXT | MORE
     WAIT "PRESS ENTER TO RETURN TO PREVIOUS MENU"
     CLOSE ALTERNATE
    ENDIF

ENDIF

IF mCHOICE="Q".OR. mCHOICE="q"
```

```
        CLEAR
        STORE "F" TO mSET
        RETURN

    ENDIF

        CLEAR

    ENDDO

    RETURN


    *   PROGRAM: LLSCRN2.PRG
    *   PROGRAMMER: Capt. Michael G. Heffner, AFIT/LSG (GAL-89S)
    *   DATE: 17 JUN 89

    CLEAR
    STORE "T" TO mSET
    DO WHILE mSET="T"

    @1,1 TO 16,79

    @2,5 SAY "              LESSONS LEARNED (I) LSA APPLICATION"

    @4,5 SAY "(8)   LSA/LSAR REVIEWS (1614)"
    @5,5 SAY "(9)   LSA/LSAR (1615)"
    @6,5 SAY "(10) LSA CONTROL NUMBER  (LCN) STRUCTURE (1616)"
    @7,5 SAY "(11) LOGISTICS SUPPORT ANALYSIS (LSA) (1620)"
    @8,5 SAY "(12) SUPPORT FACILITIES FOR NEW EQUIPMENT (1658)"
    @9,5 SAY "(13) IDENTIFICATION OF NEW AND MODIFIED TRAINING"
    @10,5 SAY "      DEVICES REQUIREMENTS (1659)"
    @11,5 SAY "(14) CONTRACTOR LOGISTIC SUPPORT (CLS) SPARES
    AND"
    @12,5 SAY "      REPAIR PARTS (1668)"
    @13,5 SAY "(15) DEVELOPMENT OF AN END ITEM FROM THE PRODUCT"
    @14,5 SAY "      IMPROVEMENT PROGRAM (PIP) (1798)"
    @15,5 SAY "(16) LSA/LSAR GUIDANCE CONFERENCE AND REVIEWS
    (2355)"

    STORE "  " TO mCHOICE
    STORE "   " TO mLNUM

    @17,2 TO 20,78 DOUBLE

    @18,4 SAY "[A] PAGE UP; [B] PAGE DOWN; [C] REVIEW A LESSON;"
    @18,53 SAY "[Q] RETURN TO"
    @19,4 SAY "MAIN MENU: ENTER CHOICE AND PRESS ENTER" GET
    mCHOICE
    READ

    IF mCHOICE="A" .OR. mCHOICE="a"
```

```
          CLEAR
          DO LLSCRN1.PRG

ENDIF

IF mCHOICE="B" .OR. mCHOICE="b"

          CLEAR
          DO LLSCRN3.PRG

ENDIF

IF mCHOICE="C" .OR. mCHOICE="c"

          @22,2 SAY "ENTER LESSON NUMBER AND PRESS ENTER" GET
mLNUM
          READ
          CLEAR

          IF mLNUM="8"
           !TYPE A:LL1614.TXT ¦ MORE
           WAIT "PRESS ENTER TO RETURN TO PREVIOUS MENU"
           CLOSE ALTERNATE
          ENDIF
          IF mLNUM="9"
           !TYPE A:LL1615.TXT ¦ MORE
           WAIT "PRESS ENTER TO RETURN TO PREVIOUS MENU"
           CLOSE ALTERNATE
          ENDIF
          IF mLNUM="10"
           !TYPE A:LL1616.TXT ¦ MORE
           WAIT "PRESS ENTER TO RETURN TO PREVIOUS MENU"
           CLOSE ALTERNATE
          ENDIF
          IF mLNUM="11"
           !TYPE A:LL1620.TXT ¦ MORE
           WAIT "PRESS ENTER TO RETURN TO PREVIOUS MENU"
           CLOSE ALTERNATE
          ENDIF
          IF mLNUM="12"
           !TYPE A:LL1658.TXT ¦ MORE
           WAIT "PRESS ENTER TO RETURN TO PREVIOUS MENU"
           CLOSE ALTERNATE
          ENDIF
          IF mLNUM="13"
           !TYPE A:LL1659.TXT ¦ MORE
           WAIT "PRESS ENTER TO RETURN TO PREVIOUS MENU"
           CLOSE ALTERNATE
          ENDIF
          IF mLNUM="14"
           !TYPE A:LL1668.TXT ¦ MORE
           WAIT "PRESS ENTER TO RETURN TO PREVIOUS MENU"
           CLOSE ALTERNATE
```

```
            ENDIF
            IF mLNUM="15"
              !TYPE A:LL1798.TXT ¦ MORE
              WAIT "PRESS ENTER TO RETURN TO PREVIOUS MENU"
            · CLOSE ALTERNATE
            ENDIF
            IF mLNUM="16"
              !TYPE A:LL2355.TXT ¦ MORE
              WAIT "PRESS ENTER TO RETURN TO PREVIOUS MENU"
              CLOSE ALTERNATE
            ENDIF

      ENDIF

      IF mCHOICE="Q" .OR. mCHOICE="q"

            CLEAR
            STORE "F" TO mSET
            RETURN

      ENDIF

            CLEAR

      ENDDO


      RETURN


      *   PROGRAM: LLSCRN3.PRG
      *   PROGRAMMER: Capt. Michael G. Heffner, AFIT/LSG (GAL-89S)
      *   DATE: 17 JUN 89

      CLEAR
      STORE "T" TO mSET
      DO WHILE mSET="T"

      @1,1 TO 16,79

      @2,5 SAY "           LESSONS LEARNED (II) LSAR DATA MANAGEMENT"

      @5,5 SAY "(17) PREPARATION OF STATEMENT OF WORK (SOW)
      (0366)"
      @6,5 SAY "(18) SUB-CONTRACTOR/VENDOR DATA (1461)"
      @7,5 SAY "(19) LSA RECORD (LSAR) (0944)"
      @8,5 SAY "(20) RELIABILITY AND MAINTAINABILITY (R&M) DATA
      (0945)"
      @9,5 SAY "(21) TIMELY HARDNESS CRITICAL REQUIREMENTS (1132)"
      @10,5 SAY "(22) MONITORING OF ENGINEERING CHANGE"
      @11,5 SAY "      PROPOSALS (ECPs) (1157)"
      @12,5 SAY "(23) LSA/LSA RECORD (LSAR) (1158)"
      @13,5 SAY "(24) FORMAT AND CONTENT OF LSA DATA (1159)"
```

```
@14,5 SAY "(25) LSA RECORD (LSAR) AS A DATA BASE FOR LIFE"
@15,5 SAY "        CYCLE COSTING (LCC) EFFORTS (1160)"

STORE " " TO mCHOICE
STORE "   " TO mLNUM

@17,2 TO 20,78 DOUBLE

@18,4 SAY "[A] PAGE UP; [B] PAGE DOWN; [C] REVIEW A LESSON;"

@18,53 SAY "[Q] RETURN TO"
@19,4 SAY "MAIN MENU: ENTER CHOICE AND PRESS ENTER" GET
mCHOICE
READ

IF mCHOICE="A" .OR. mCHOICE="a"

    CLEAR
    DO LLSCRN2.PRG

ENDIF

IF mCHOICE="B" .OR. mCHOICE="b"

    CLEAR
    DO LLSCRN4

ENDIF

IF mCHOICE="C" .OR. mCHOICE="c"

    @22,2 SAY "ENTER LESSON NUMBER AND PRESS ENTER" GET
mLNUM
    READ
    CLEAR

    IF mLNUM="17"
     !TYPE A:LL0366.TXT ; MORE
     WAIT "PRESS ENTER TO RETURN TO PREVIOUS MENU"
     CLOSE ALTERNATE
    ENDIF
    IF mLNUM="18"
     !TYPE A:LL0461.TXT ; MORE
     WAIT "PRESS ENTER TO RETURN TO PREVIOUS MENU"
     CLOSE ALTERNATE
    ENDIF
    IF mLNUM="19"
     !TYPE A:LL0944.TXT ; MORE
     WAIT "PRESS ENTER TO RETURN TO PREVIOUS MENU"
     CLOSE ALTERNATE
    ENDIF
    IF mLNUM="20"
     !TYPE A:LL0945.TXT ; MORE
```

```
                    WAIT "PRESS ENTER TO RETURN TO PREVIOUS MENU"
                    CLOSE ALTERNATE
                ENDIF
                IF mLNUM="21"
                    !TYPE A:LL1132.TXT ¦ MORE
                    WAIT "PRESS ENTER TO RETURN TO PREVIOUS MENU"
                    CLOSE ALTERNATE
                ENDIF
                IF mLNUM="22"
                    !TYPE A:LL1157.TXT ¦ MORE
                    WAIT "PRESS ENTER TO RETURN TO PREVIOUS MENU"
                    CLOSE ALTERNATE
                ENDIF
                IF mLNUM="23"
                    !TYPE A:LL1158.TXT ¦ MORE
                    WAIT "PRESS ENTER TO RETURN TO PREVIOUS MENU"
                    CLOSE ALTERNATE
                ENDIF
                IF mLNUM="24"
                    !TYPE A:LL1159.TXT ¦ MORE
                    WAIT "PRESS ENTER TO RETURN TO PREVIOUS MENU"
                    CLOSE ALTERNATE
                ENDIF
                IF mLNUM="25"
                    !TYPE A:LL1160.TXT ¦ MORE
                    WAIT "PRESS ENTER TO RETURN TO PREVIOUS MENU"
                    CLOSE ALTERNATE
                ENDIF

        ENDIF

        IF mCHOICE="Q" .OR. mCHOICE="q"

            CLEAR
            STORE "F" TO mSET
            RETURN

        ENDIF

            CLEAR

        ENDDO


        RETURN


*   PROGRAM: LLSCRN4.PRG
*   PROGRAMMER: Capt. Michael G. Heffner, AFIT/LSG (GAL-89S)
*   DATE: 17 JUN 89

CLEAR
STORE "T" TO mSET
```

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```
DO WHILE mSET="T"

@1,1 TO 16,79

@2,5 SAY "        LESSONS LEARNED (II) LSAR DATA MANAGEMENT"
@5,5 SAY "(26) GOVERNMENT SUBMITTAL OF LSA DATA RECORD A TO"
@6,5 SAY "        CONTRACTORS PRIOR TO FSD CONTRACT AWARD
(1308)"
@7,5 SAY "(27) LSA RECORD (LSAR) REVIEWS (1612)"
@8,5 SAY "(28) REVIEWS (1614)"
@9,5 SAY "(29) LSA/LSA RECORD (LSA/LSAR) (1615)"
@10,5 SAY "(30) LSA CONTROL NUMBER (LCN) STRUCTURE (1616)"
@11,5 SAY "(31) LSA FOR PUBLICATIONS (1618)"
@12,5 SAY "(32) CONTRACTUAL REQUIREMENT FOR UPDATE LSA"
@13,5 SAY "     RECORD (LSAR) (1790)"

STORE " " TO mCHOICE
STORE "   " TO mLNUM

@17,2 TO 20,78 DOUBLE

@18,4 SAY "[A] PAGE UP; [B] PAGE DOWN; [C] REVIEW A LESSON;"
@18,53 SAY "[Q] RETURN TO"
@19,4 SAY "MAIN MENU: ENTER CHOICE AND PRESS ENTER" GET
mCHOICE
READ

IF mCHOICE="A" .OR. mCHOICE="a"

    CLEAR
    DO LLSCRN3.PRG

ENDIF

IF mCHOICE="B" .OR. mCHOICE="b"

    CLEAR
    DO LLSCRN5.PRG

ENDIF

IF mCHOICE="C" .OR. mCHOICE="c"

    @22,2 SAY "ENTER LESSON NUMBER AND PRESS ENTER" GET
mLNUM
    READ
    CLEAR

    IF mLNUM="26"
     !TYPE A:LL1308.TXT | MORE
     WAIT "PRESS ENTER TO RETURN TO PREVIOUS MENU"
     CLOSE ALTERNATE
    ENDIF
```

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```
          IF mLNUM="27"
           !TYPE A:LL1612.TXT | MORE
           WAIT "PRESS ENTER TO RETURN TO PREVIOUS MENU"
           CLOSE ALTERNATE
          ENDIF
          IF mLNUM="28"
           !TYPE A:LL1614.TXT | MORE
           WAIT "PRESS ENTER TO RETURN TO PREVIOUS MENU"
           CLOSE ALTERNATE
          ENDIF
          IF mLNUM="29"
           !TYPE A:LL1615.TXT | MORE
           WAIT "PRESS ENTER TO RETURN TO PREVIOUS MENU"
           CLOSE ALTERNATE
          ENDIF
          IF mLNUM="30"
           !TYPE A:LL1616.TXT | MORE
           WAIT "PRESS ENTER TO RETURN TO PREVIOUS MENU"
           CLOSE ALTERNATE
          ENDIF
          IF mLNUM="31"
           !TYPE A:LL1618.TXT | MORE
           WAIT "PRESS ENTER TO RETURN TO PREVIOUS MENU"
           CLOSE ALTERNATE
          ENDIF
          IF mLNUM="32"
           !TYPE A:LL1790.TXT | MORE
           WAIT "PRESS ENTER TO RETURN TO PREVIOUS MENU"
           CLOSE ALTERNATE
          ENDIF

   ENDIF

   IF mCHOICE="Q" .OR. mCHOICE="q"

        CLEAR
        STORE "F" TO mSET
        RETURN

   ENDIF

        CLEAR

ENDDO


RETURN


*  PROGRAM: LLSCRN5.PRG
*  PROGRAMMER: Capt. Michael G. Heffner, AFIT/LSG (GAL-89S)
*  DATE: 17 JUN 89
```

```
CLEAR
STORE "T" TO mSET
DO WHILE mSET="T"

@1,1 TO 16,.79

@2,5 SAY "     LESSONS LEARNED (III) LOGISTICS
CONSIDERATIONS"
@4,5 SAY "(33) REPAIR LEVEL ANALYSIS - CONTRACTOR TASKING
(0272)"
@5,5 SAY "(34) RELIABILITY AND MAINTAINABILITY - "
@6,5 SAY "       REPAIR LEVEL ANALYSIS (0273)"
@7,5 SAY "(35) LOGISTICS CONSIDERATIONS IN FORMING THE WORK"
@8,5 SAY "       BREAKDOWN STRUCTURE (WBS)(0448)"
@9,5 SAY "(36) TECHNICAL DATA MANAGEMENT (0467)"
@10,5 SAY "(37) FUNDS FOR CONTRACT SUPPORT (0556)"
@11,5 SAY "(38) SOURCE, MAINTENANCE, RECOVERABILITY (SMR)"
@12,5 SAY "       CODE CHANGES (0835)"
@13,5 SAY "(39) TYPE I TRAINING CONTRACTS (1201)"
@14,5 SAY "(40) TIMELY SUBMISSION OF TRADE STUDIES"
@15,5 SAY "       BY CONTRACTORS (1311)"

STORE " " TO mCHOICE
STORE "  " TO mLNUM

@17,2 TO 20,78 DOUBLE

@18,4 SAY "[A] PAGE UP; [B] PAGE DOWN; [C] REVIEW A LESSON;"
@18,53 SAY "[Q] RETURN TO"
@19,4 SAY "MAIN MENU: ENTER CHOICE AND PRESS ENTER" GET
mCHOICE
READ

IF mCHOICE="A" .OR. mCHOICE="a"

     CLEAR
     DO LLSCRN4.PRG

ENDIF

IF mCHOICE="B" .OR. mCHOICE="b"

     CLEAR
     DO LLSCRN6.PRG

ENDIF

IF mCHOICE="C" .OR. mCHOICE="c"

     @22,2 SAY "ENTER LESSON NUMBER AND PRESS ENTER" GET
mLNUM
     READ
     CLEAR
```

```
        IF mLNUM="33"
            !TYPE A:LL0272.TXT ¦ MORE
            WAIT "PRESS ENTER TO RETURN TO PREVIOUS MENU"
            CLOSE ALTERNATE
        ENDIF
        IF mLNUM="34"
            !TYPE A:LL0273.TXT ¦ MORE
            WAIT "PRESS ENTER TO RETURN TO PREVIOUS MENU"
            CLOSE ALTERNATE
        ENDIF
        IF mLNUM="35"
            !TYPE A:LL0448.TXT ¦ MORE
            WAIT "PRESS ENTER TO RETURN TO PREVIOUS MENU"
            CLOSE ALTERNATE
        ENDIF
        IF mLNUM="36"
            !TYPE A:LL0467.TXT ¦ MORE
            WAIT "PRESS ENTER TO RETURN TO PREVIOUS MENU"
            CLOSE ALTERNATE
        ENDIF
        IF mLNUM="37"
            !TYPE A:LL0556.TXT ¦ MORE
            WAIT "PRESS ENTER TO RETURN TO PREVIOUS MENU"
            CLOSE ALTERNATE
        ENDIF
        IF mLNUM="38"
            !TYPE A:LL0835.TXT ¦ MORE
            WAIT "PRESS ENTER TO RETURN TO PREVIOUS MENU"
            CLOSE ALTERNATE
        ENDIF
        IF mLNUM="39"
            !TYPE A:LL1201.TXT ¦ MORE
            WAIT "PRESS ENTER TO RETURN TO PREVIOUS MENU"
            CLOSE ALTERNATE
        ENDIF
        IF mLNUM="40"
            !TYPE A:LL1311.TXT ¦ MORE
            WAIT "PRESS ENTER TO RETURN TO PREVIOUS MENU"
            CLOSE ALTERNATE
        ENDIF

    ENDIF

    IF mCHOICE="Q" .OR. mCHOICE="q"

        CLEAR
        STORE "F" TO mSET
        RETURN

    ENDIF

        CLEAR
```

```
ENDDO
RETURN

*   PROGRAM: LLSCRN6.PRG
*   PROGRAMMER: Capt. Michael G. Heffner, AFIT/LSG (GAL-89S)
*   DATE: 17 JUN 89

CLEAR
STORE "T" TO mSET
DO WHILE mSET="T"

@1,1 TO 16,79

@2,5 SAY "     LESSONS LEARNED (III) LOGISTICS
CONSIDERATIONS"
@5,5 SAY "(41) ACCELERATED LEAD TIME FOR"
@6,5 SAY "        SUPPORT EQUIPMENT (SE) (1316)"
@7,5 SAY "(42) PRE-SERD (SUPPORT EQUIPMENT RECOMMENDATION
DATA)"
@8,5 SAY "        APPROVAL FOR EARLY SE ACQUISITION  (1486)"
@9,5 SAY "(43) SOURCE SELECTION LIFE CYCLE COST (LCC) "
@10,5 SAY "        EVALUATION (1526)"
@11,5 SAY "(44) LSA/LSAR DURING COMPETITIVE CONTRACT"
@12,5 SAY "        EVALUATION (1617)"
@13,5 SAY "(45) SYSTEM AVAILABILITY PARAMETERS (1706)"
@14,5 SAY "(46) DEPOT MAINTENANCE WORK REQUIREMENTS (DMWR)"
@15,5 SAY "        DEVELOPMENT DURING SYSTEM ACQUISITIONS
(1713)"


STORE "  " TO mCHOICE
STORE "   " TO mLNUM

@17,2 TO 20,78 DOUBLE

@18,4 SAY "[A] PAGE UP; [B] PAGE DOWN; [C] REVIEW A LESSON;"
@18,53 SAY "[Q] RETURN TO"
@19,4 SAY "MAIN MENU: ENTER CHOICE AND PRESS ENTER" GET
mCHOICE
READ

IF mCHOICE="A" .OR. mCHOICE="a"

     CLEAR
     DO LLSCRN5.PRG

ENDIF     .

IF mCHOICE="B" .OR. mCHOICE="b"

     CLEAR
     DO LLSCRN7.PRG
```

```
ENDIF

IF mCHOICE="C" .OR. mCHOICE="c"

    @22,2 SAY "ENTER LESSON NUMBER AND PRESS ENTER" GET
mLNUM
    READ
    CLEAR

    IF mLNUM="41"
      !TYPE A:LL1316.TXT ¦ MORE
     WAIT "PRESS ENTER TO RETURN TO PREVIOUS MENU"
     CLOSE ALTERNATE
    ENDIF
    IF mLNUM="42"
      !TYPE A:LL1486.TXT ¦ MORE
     WAIT "PRESS ENTER TO RETURN TO PREVIOUS MENU"
     CLOSE ALTERNATE
    ENDIF
    IF mLNUM="43"
      !TYPE A:LL1526.TXT ¦ MORE
     WAIT "PRESS ENTER TO RETURN TO PREVIOUS MENU"
     CLOSE ALTERNATE
    ENDIF
    IF mLNUM="44"
      !TYPE A:LL1617.TXT ¦ MORE
     WAIT "PRESS ENTER TO RETURN TO PREVIOUS MENU"
     CLOSE ALTERNATE
    ENDIF
    IF mLNUM="45"
      !TYPE A:LL1706.TXT ¦ MORE
     WAIT "PRESS ENTER TO RETURN TO PREVIOUS MENU"
     CLOSE ALTERNATE
    ENDIF
    IF mLNUM="46"
      !TYPE A:LL1713.TXT ¦ MORE
     WAIT "PRESS ENTER TO RETURN TO PREVIOUS MENU"
      CLOSE ALTERNATE
    ENDIF

ENDIF

IF mCHOICE="Q" .OR. mCHOICE="q"

    CLEAR
    STORE "F" TO mSET
    RETURN

ENDIF

    CLEAR

ENDDO
```

```
RETURN
*   PROGRAM: LLSCRN7.PRG
*   PROGRAMMER: Capt. Michael G. Heffner, AFIT/LSG (GAL-89S)
*   DATE: 17 JUN 89

CLEAR
STORE "T" TO mSET
DO WHILE mSET="T"

@1,1 TO 16,79

@2,5 SAY "          LESSONS LEARNED (III) LOGISTICS
CONSIDERATIONS"
@5,5 SAY "(47)  TEST EQUIPMENT (1766)"
@6,5 SAY "(48) DEVELOPMENT OF AN END ITEM FROM THE PRODUCT"
@7,5 SAY "          IMPROVEMENT PROGRAM (PIP) (1798)"
@12,5 SAY "THERE ARE NO MORE LESSONS LEARNED TO REVIEW"

STORE " " TO mCHOICE
STORE "  " TO mLNUM

@17,2 TO 20,78 DOUBLE
@18,4 SAY "[A] PAGE UP; [B] PAGE DOWN; [C] REVIEW A LESSON;"
@18,53 SAY "[Q] RETURN TO"
@19,4 SAY "MAIN MENU: ENTER CHOICE AND PRESS ENTER" GET
mCHOICE

READ

IF mCHOICE="A" .OR. mCHOICE="a"

     CLEAR
     DO LLSCRN6.PRG

ENDIF

IF mCHOICE="B" .OR. mCHOICE="b"

     @22,2
     WAIT "THERE ARE NO MORE LESSONS LEARNED (PRESS ENTER)"


ENDIF

IF mCHOICE="C" .OR. mCHOICE="c"

     @22,2 SAY "ENTER LESSON NUMBER AND PRESS ENTER" GET
mLNUM
     READ
     CLEAR
```

```
      IF mLNUM="47"
         !TYPE B:LL1766.TXT ; MORE
         WAIT "PRESS ENTER TO RETURN TO PREVIOUS MENU"
         CLOSE ALTERNATE
      ENDIF

      IF mLNUM="48"
         !TYPE B:LL1798.TXT ; MORE
         WAIT "PRESS ENTER TO RETURN TO PREVIOUS MENU"
         CLOSE ALTERNATE
      ENDIF

   ENDIF

   IF mCHOICE="Q" .OR. mCHOICE="q"

      CLEAR
      STORE "F" TO mSET
      RETURN

   ENDIF

      CLEAR

   ENDDO


   RETURN
```

```
*   PROGRAM: Q3011.PRG
*   PROGRAMMER: Capt. Michael G. Heffner, AFIT/LSJ  GAL-89S)
*   DATE: 18 JULY 89

CLEAR
@1,1
TEXT
TASK 301 - FUNCTIONAL REQUIREMENTS IDENTIFICATION

        Subtask 301.2.1 - Functional Requirements
        Subtask 301.2.2 - Unique Functional Requirements
        Subtask 301.2.3 - Risks
        Subtask 301.2.6 - Updates

Are all of the operation and support function known?  This
includes peacetime and wartime requirements, unique
requirements, and risks.

ENDTEXT

IF mPHASE="A"

TEXT
This task is generally applicable for this phase.
ENDTEXT

ENDIF

IF mPHASE="B"

TEXT
This task is generally applicable for this phase.
ENDTEXT

ENDIF

IF mPHASE="C"

TEXT
This task is selectively applicable for this phase.
However, it requires considerable consideration of its
intent and tailoring to be cost effective.
ENDTEXT

ENDIF

IF mPHASE="D"
```

224

```
TEXT
This task is generally applicable to design changes only.
It requires considerable consideration of its intent and
tailoring to be cost effective.
ENDTEXT

ENDIF

LOCATE FOR TASK_NUM='301.2.2'
IF APPLICABLE="SELECTED"
    @17,10 SAY "THIS TASK HAS BEEN PREVIOUSLY SELECTED."
ENDIF
IF APPLICABLE="NOT SELECTED"
    @17,10 SAY "THIS TASK HAS NOT BEEN PREVIOUSLY SELECTED."

ENDIF
IF APPLICABLE="UNSURE"
    @17,10 SAY "YOU ARE UNSURE OF THIS TASK'S APPLICABILITY"

ENDIF

RETURN
```

Appendix L: LSA Task Tailoring Questions

TASK 101 - DEVELOPMENT OF AN EARLY LSA STRATEGY

Subtask 101.2.1 - LSA Strategy

Has an LSA strategy been developed and the required LSA tasks and subtasks been identified? Including: (1) time phasing for task initiation/completion; (2) relationship of task and taskoutput data to systems engineering and other ILS programs; and, (3) Government and contractor responsibilities?

NOTE: This task is normally accomplished by the the Government during the planning phase, prior to release of an RFP.

Subtask 101.2.2 - Cost Estimate

Are cost estimates for the LSA tasks and subtasks to be performed required?

Subtask 101.2.3 - Updates

Are updates to the LSA strategy required?"

TASK 102 - LOGISTICS SUPPORT ANALYSIS PLAN (LSAP)

Subtask 102.2.1 - LSA Plan
Subtask 102.2.2 - Updates

Do you need to develop an LSAP? If not, are updates required? (selecting [N] automatically selects the LSAP updates task)

NOTE: Review Mil-Std-1388-1A and application guidance for more extensive information before making your decision.

This task is generally applicable for this acquisition. It is selectively applicable for equipment level acquisitions.

TASK 103 - PROGRAM AND DESIGN REVIEWS

Subtask 103.2.1 - Establish Review Procedures
Subtask 103.2.2 - Design Reviews

Are design reviews required, and should LSA be addressed at these reviews?

Subtasks 103.2.1 and 103.2.2 are generally applicable to this phase. These tasks are selectively applicable for equipment level acquisitions.

NOTE: Mil-Std-1388-1A is not the primary implementation document, refer to Mil-Std-1521.

Subtask 103.2.1 - Establish Review Procedures
Subtask 103.2.3 - Program Reviews

Are program reviews required, and should LSA be addressed at these reviews?

Task 103.2.1 and 103.2.3 are generally applicable to this phase. These tasks are selectively applicable for equipment level acquisitions.

NOTE: Mil-Std-1388-1A is not the primary implementation document, refer to Mil-Std-1521.

Subtask 103.2.1 - Establish Review Procedures
Subtask 103.2.4 - LSA Review

Are LSA reviews required, and should LSA be addressed at these reviews?

Task 103.2.1 and 103.2.4 are generally applicable to this phase. These tasks are selectively applicable for equipment level acquisitions.

NOTE: Mil-Std-1388-1A is not the primary implementation document, refer to Mil-Std-1521.

TASK 201 - USE STUDY

Subtask 201.2.1 - Supportability Factors
Subtask 201.2.2 - Quantitative Factors
Subtask 201.2.4 - Use Study Report and Updates

Do you still need to have the pertinent support and
supportability related factors identified?

Subtask 201.2.3 - Field Visits
Subtask 202.2.4 - Use Study Reports and Updates

Are contractor field visits to operational and support units
required to help identify and quantify the pertinent
supportability factors?

TASK 202 - MISSION HARDWARE, SOFTWARE AND SUPPORT SYSTEM
STANDARDIZATION

Is hardware, software, or support system standardization an
acquisition requirement?

NOTE: Ensure that the requirements of this do not duplicate
other standardization programs, such as parts
standardization requirements per Mil-Std-965.

Subtask 202.2.1 - Supportability Constraints

Have logistics support resources which have potential
benefits for use on each system/equipment concept under
consideration been identified? All ILS elements should be
considered.

Subtasks 202.2.2 - Supportability Characteristics

Have hardware, software and support system supportability,
cost and readiness characteristics for standardization
efforts been determined, and provided as input?

Subtask 202.2.3 - Recommended Approaches

Have recommended hardware, software and support system
standardization approached been identified which have
utility due to cost, readiness and supportability
considerations with the need for further study?

Subtask 202.2.4 - Risks

Have risks associated with each standardization constraint
established been identified?

TASK 203 - COMPARATIVE ANALYSIS

Subtask 203.2.1 - Identify Comparative Systems

Have existing system and subsystems, useful for comparative
analysis with the new system been identified, including
unfielded systems?

Subtask 203.2.2 - Baseline Comparison System

Has a Baseline Comparison System (BCS) representing the
cost, readiness and supportability drivers for the new
system been developed without the need for further update?

Subtask 203.2.3 - Comparative System Characteristics

Have the operation and support costs, logistics support
resource requirements, R&M values, and readiness values of
the comparative systems been identified?

Subtask 203.2.4 - Qaulitative Supportability Problems

Have qualitative supportability problems on comparative
systems which should be prevented on the new system been
identified?

Subtask 203.2.5 - Supportability, Cost and Readiness Drivers

Have supportability, cost and readiness drivers for each
comparative system or subsystem been determined?

Subtask 203.2.6 - Unique System Drivers

Have supportability, cost and readiness drivers for the new
system been determined for which there are no comparable
systems?

Subtask 203.2.7 - Updates

Are updates to the comparative system description, their associated parameters, and the supportability, cost and readiness drivers required?

Subtask 203.2.8 - Risks and Assumptions

Do you want the risks and assumptions associated with the comparative systems, their associated parameters and drivers identified and documented?

TASK 204 - TECHNOLOGICAL OPPORTUNITIES

Subtask 204.2.1 - Recommended Design Objectives

Have design technology approaches to achieve supportability improvements on the new system over existing systems been identified and established?

Subtask 204.2.2 - Updates

Are updates to the design objectives required as new system alternatives become better defined?

Subtask 204.2.3 - Risks

Have risks associated with technological opportunities been identified along with approaches to verify the improvement potential of the technological opportunity and any cost or schedule impacts from the use of that technology?

TASK 205 - SUPPORTABILITY AND SUPPORTABILITY
RELATED DESIGN FACTORS

Subtask 205.2.1 - Supportability Characteristics

Have quantitative supportability characteristics been established from alternative design and operational concepts?

Subtask 205.2.2 - Sensitivity Analysis

Have sensitivity analyses of the variables associated with
the supportability, cost, and readiness drivers for the new
system been performed?

Subtask 205.2.3 - Identification of Proprietary Data

Have all hardware and software for which the Government will
or may not have full rights to been identified?

Subtask 205.2.4 - Supportability Objectives and Associated
                  Risks

Have supportability, cost and readiness drivers for the new
system been established?

Subtask 205.2.5 - Specification Requirements

Have supportability and supportability related design
constraints been established?

Subtask 205.2.6 - NATO Constraints

Have constraints that preclude the adoption/use of NATO
systems/equipment been identified?

Subtask 205.2.7 - Supportability Goals and Thresholds

Are updates to supportability, cost and readiness objectives
and established goals and thresholds required as new
system/equipment alternatives become better defined?

TASK 301 - FUNCTIONAL REQUIREMENTS IDENTIFICATION

Subtask 301.2.1 - Functional Requirements
Subtask 301.2.2 - Unique Functional Requirements
Subtask 301.2.3 - Risks
Subtask 301.2.6 - Updates

Are all of the operation and support function known? This
includes peacetime and wartime requirements, unique
requirements, and risks.

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```
Subtask 301.2.4    - Operations and Maintennace Tasks
Subtask 301.2.4.1 - Failure Modes, Effects and Criticality
                    Analysis (FMECA)
Subtask 301.2.6    - Updates
```

Are there any unknown maintenance tasks, and/or will a FMECA be performed?

NOTE: Mil-Std-1629 is the primary tasking document for FMECAs.   This task ONLY specifies a use for the results.

```
Subtask 301.2.4    - Operations and Maintenance Tasks
Subtask 301.2.4.2 - Reliability Centered Maintenance
Subtask 301.2.6    - Updates
```

Will preventive maintenance be used, or will a Reliability Centered Maintenance (RCM) analysis be required to be performed?

NOTE: Mil-Std-1843 is the primary tasking document.   This task ONLY specifies a use for the results.

```
Subtask 301.2.4    - Operations and Maintenance Tasks
Subtask 301.2.4.3 - Operations and Support Tasks Not
                    Identified by the FMECA or RCM
Subtask 301.2.6    - Updates
```

Have the operations and maintenance tasks for the new system been fully identified based on the identified functional requirements without the need for further ident`fication?

```
Subtask 301.2.5 - Design Alternatives
Subtask 301.2.6 - Updates
```

Will design alternatives be formulated to correct deficiencies uncovered during identification of functional requirements or operations and maintenance or simplify functions?

TASK 302 - SUPPORT SYSTEM ALTERNATIVES

Subtask 302.2.1 - Alternative Support Concepts

Should alternative support concepts be developed for the new system/equipment?

Subtask 302.2.2 - Support Concept Updates

Are updates to the alternative support concepts for the new system/equipment required?

Subtask 302.2.3 - Alternative Support Plans

Are alternative support plans required to be developed for the new system/equipment?

Subtask 302.2.4 - Support Plan Updates

Are updates and refinements to the support plans required?

Subtask 302.2.5 - Risks

Should the risks associated with each support system alternative identified and documented?

TASK SECTION 303 - EVALUATION OF ALTERNATIVES
AND TRADEOFF ANALYSIS

Subtask 303.2.1 - Tradeoff Criteria
Subtask 303.2.2 - Support System Tradeoffs

Are evaluations and tradeoffs between support system alternatives to be conducted?

Subtask 302.2.1 - Tradeoff Criteria
Subtask 303.2.3 - System Tradeoffs

Are evaluations and tradeoffs between design, support, and operations concepts to be conducted?

TASK SECTION 303 - EVALUATION OF ALTERNATIVES
AND TRADEOFF ANALYSIS

Subtask 303.2.1 - Tradeoff Criteria
Subtask 303.2.4 - Readiness Sensitivities

Are evaluations of the sensitivity of system readiness parameters to changes in key design and support to be conducted?

Subtask 303.2.1 - Tradeoff Criteria
Subtask 303.2.5 - Manpower and Personnel Tradeoffs

Are evaluations of the implications of alternative
system/equipment concepts in terms of total number of
personnel required, skill levels, job classifications and
experience required?

Subtask 303.2.1 - Tradeoff Criteria
Subtask 303.2.6 - Training Tradeoffs

Are evaluations and tradeoffs between design, operations,
training and personnel job design to determine the optimum
solution for attaining and maintaining the required
proficiency of operating and maintaining personnel required?

Subtask 303.2.1 - Tradeoff Criteria
Subtask 303.2.7 - Repair Level Analysis

Is a Repair Level Analysis (RLA) required to conducted?

NOTE: This subtask is not the implementing driver for
conducting an RLA.

Subtask 303.2.1 - Tradeoff Criteria
Subtask 303.2.8 - Diagnostic Tradeoffs

Are alternative diagnostics concepts to be evaluated to
degree of BIT, off-line-test, automatic test, etc.?

Subtask 303.2.1 - Tradeoff Criteria
Subtask 303.2.9 - Comparative Evaluations

Are comparative evaluations between supportability, cost and
readiness parameters of the new system/equipment to be
conducted?

Subtask 303.2.1 - Tradeoff Criteria
Subtask 303.2.10 - Energy Tradeoffs

Are evaluations and tradeoffs between system/equipment
alternatives and energy requirements to be conducted?

Subtask 303.2.1 - Tradeoff Criteria
Subtask 303.2.11 - Survivability Tradeoffs

Are evaluations and tradeoffs between system/equipment
alternatives and survivability and battle damage repair
characteristics in a combat environment to be conducted?

Subtask 303.2.1 - Tradeoff Criteria
Subtask 303.2.12 - Transportability Tradeoffs

Are evaluations and tradeoffs between system/equipment
alternatives and transportability requirement to be
conducted?

Subtask 303.2.1 - Tradeoff Criteria
Subtask 303.2.13 - Support Facility Tradeoffs

Are evaluations and tradeoffs between system/equipment
alternatives and support facility requirements to be
conducted?

TASK 401 - TASK ANALYSIS

Subtask 401.2.1 - Task Analysis
Subtask 401.2.2 - Analysis Documentation

Does a detailed task analysis need to be accomplished for
each required operation and maintenance task?

(Subtask 301.2.4 identifies operation and maintenance
tasks.)

Subtask 401.2.3 - New/Critical Support Resources

Do new or critical logistic resources required to operate
and maintain the system/equipment need to be identified?

Subtask 401.2.4 - Training Requirements and Recommendations

Do training requirements and recommendations needto be
identified based on the results of the task analysis?

Subtask 401.2.5 - Design Improvements

Are there tasks which fail to meet goals and constraints need to be identified and alternative designs proposed?

Subtask 401.2.6 - Management Plans

Based upon identified new or critical resources are there management actions which need to be identified that can be taken to minimize risks?

Subtask 401.2.7 - Transportability Analysis

Is a transportability analysis required for the new system/equipment?

Subtask 401.2.8 - Provisioning Requirements

Does provisioning documentation need to be updated?
(This task is required to complete the LSA Record)

Subtask 401.2.9 - Verification

Is key documentation in the LSA Record required to be validated through operations and maintenance tasks to be performed on-equipment?

Subtask 401.2.10 - ILS Output Products

Are output reports and summaries (which can include the LSA Record itself) required to satisfy ILS documentation requirements?

TASK 402 - EARLY FIELDING ANALYSIS

Subtask 402.2.1 - New System Impact

Is it necessary to assess the impact on existing systems (weapon, supply, maintenance, transportation) from the introduction of the new system/equipment? This can include depot level maintenance requirements.

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Subtask 402.2.2 - Sources of Manpower and Personnel Skill

Does existing manpower and personnel skills need to be
analyzed to determine sources for obtaining the required
manapower for the new system?

Subtask 402.2.3 - Impact of Resource Shortfalls

Is an assessment of the impact on readiness of the new
system resulting from the failure to obtain required
logistic support resources required?

Subtask 402.2.4 - Combat Resource Requirements

Is a survivability analysis necessary to determine changes
in logistic resource requirements based on combat usage (do
not dupplicate the effort of Task 303)?

Subtask 402.2.5 - Plans Problem Resolution

Are plan to implement solutions to the problems identified
in the early fielding analysis required to be developed?

TASK 403 - POST PRODUCTION SUPPORT ANALYSIS

Subtask 403.2 - Post Production Support Plan

Should, for the uselful life of the system, potential
support problems (i.e., those due to inadequate supply after
production line shut down) be identified and solution
proposed to ensure continued effective support of the
system?

TASK 501 - SUPPORTABILTY TEST, EVALUATION AND VERIFICATION

Subtask 501.2.1 - Test and Evaluation Strategy

Is a test and evaluation strategy for verification of
supportability, potential test program limitations and the
effect on the accuracy of the supportability assessment
required?

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Subtask 501.2.2 - System Support Package (SSP) Component
                  List

Have the componentswhilch will be evaluated during logistic
demonstration and will be tested during development and
operational tests been full identified?

Subtask 501.2.3 - Objectives and Criteria

Do test and evaluation program objectives and criteria and
the test resources, procedures, and schedules required to
meet them need to be identified?

Subtask 501.2.4 - Updates and Corrective Actions

Should the test results be analyzed, and verified to assess
the achievement of specified supportability requirements,
with corrective actions determined as required?

Subtask 501.2.5 - Supportability Assessment Plan
                  (Post Deployment)

Do standard reporting procedures need to be analyzed to
determine the ammount and accuracy of supportability
information that will be obtained on the new system in its
operational environment?

Subtask 501.2.6 - Supportability Assessment (Post
                  Deployment)

Does supportability data from the standard reporting systems
need to be analyzed as it becomes available and
supportability goals and thresholds verified?

Appendix M: <u>Task</u> <u>Description</u> <u>Program</u> <u>Listings</u>

```
*   PROGRAM: T100.PRG
*   PROGRAMMER: Capt. Michael G. Heffner, AFIT/LSG (GAL-89S)
*   DATE: 14 JULY 1989

CLEAR
TEXT
        TASK SECTION 100 - PROGRAM PLANNING AND CONTROL
```

The tasks in this section detail the formal LSA planning and
review action in order to ensure: (1) All required LSA,
systems engineering and related actions have been
identified. (2) Scheduling, and responsibility for the
required actions has been identified and delineated.

There are three basic tasks in this task section:

        Task 101 - Development of an early LSA strategy
        Task 102 - Logistics Support Analysis Plan
        Task 103 - Program and Design Reviews

These three tasks comprise the basic elements of LSA
planning and must be accomplished, either by the Government
or contractually levied upon the contractor.

```
ENDTEXT
@22,1
WAIT "PRESS ANY KEY TO CONTINUE"
CLEAR
RETURN


*   PROGRAM: T101.PRG
*   PROGRAMMER:  Capt. Michael G. Heffner, AFIT/LSG (GAL-89S)
*   DATE: 14 JULY 89

CLEAR
TEXT
        TASK 101 - DEVELOPMENT OF AN EARLY LSA STRATEGY
```

This task guides development of the overall LSA program
strategy, and the identification of applicable LSA tasks and
subtasks. This is the earliest LSA activity, initiated as
soon as possible, and is the key to developing a cost
effective LSA program. This task is normally accomplished
by the government.

This task identifies the technical and program task
requirements required to define the system's support and

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supportability related objectives. This task must consider
the probable design approach, system operational and support
requirements (SON, PMD, etc.) estimates of R&M parameters,
and O&S costs, etc..

ENDTEXT
@22,1
WAIT "PRESS ANY KEY TO CONTINUE"
CLEAR
RETURN

* PROGRAM: T102.PRG
* PROGRAMMER: Capt. Michael G. Heffner, AFIT/LSG (GAL-89S)
* DATE: 14 JULY 89

CLEAR
TEXT
        TASK 102 - LOGISTICS SUPPORT ANALYSIS PLAN

The purpose of this task is to develop a Logistics Support
Analysis Plan (LSAP) which identifies the structure and
management of the LSA program, including:

    a.   Government and contractor responsibilities.
    b.   Task identification, task scheduling and task
sequence.
    c.   How the tasks are integrated into the entire
acquisition program; particularly the systems engineering
program.
    d.   How the results of each task will be used.

The LSAP is paramount to establishing and managing an
effective LSA program.

ENDTEXT
@22,1
WAIT   "PRESS ANY KEY TO CONTINUE"
CLEAR
RETURN

* PROGRAM: T103.PRG
* PROGRAMMER: Capt. Michael G. Heffner, AFIT/LSG (GAL-89S)
* DATE: 14 JULY 89

CLEAR
TEXT
        TASK 103- PROGRAM AND DESIGN REVIEWS

This task provides for the planning and actions required to
include LSA as an integral part of program and design
reviews.
This task assures that the LSA program is proceeding in

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accordance with contractual milestones, and that
supportability and supportability related objectives are
being considered in system design.

This task must be interfaced with Mil-Std-1521, technical
design review requirements, and the program development
schedule.

The requirements of this task are similar to the program and
design review requirements (Task 103) for: Mil-Std-882,
System Safety Program; Mil-Std-470. Maintainability Program;
Mil-Std-785, Reliability Program; and others. Recommend
consolidating and coordinating all program and design review
requirements to ensure all pertinent topics are discussed,
and integrated into the overall system development process.

```
ENDTEXT
@22,1
WAIT "PRESS ANY KEY TO CONTINUE"
CLEAR
RETURN


* PROGRAM: T200:PRG
* PROGRAMMER: Capt. Michael G. Heffner, AFIT/LSG (GAL-89S)
* DATE:   14 JULY 89

CLEAR
TEXT
 TASK SECTION 200 - MISSION AND SUPPORT SYSTEM DEFINITION
```

The tasks in this section are used to establish support
objectives, design goals, thresholds, and constraints, and
to provide supportability input into early design tradeoff
analyses. The early acquisition phases offer the greatest
opportunity to influence design from a supportability
standpoint. These tasks must be accomplished in a timely
manner and the results used in the system analyses and
trade-offs to be effective.

The primary tasks of this section are:

Task 201 - Use Study
Task 202 - Mission Hardware, Software and Support System
               Standardization
Task 203 - Comparative Analysis
Task 204 - Technological Opportunities
Task 205 - Supportability and Supportability Related Design
               Factors

```
ENDTEXT
@22,1
```

```
WAIT "PRESS ANY KEY TO CONTINUE"
CLEAR
RETURN


*   PROGRAM:  T201.PRG
*   PROGRAMMER:  Capt. Michael G. Heffner, AFIT/LSG (GAL-89S)
*   DATE: 14 JULY 89

CLEAR
TEXT
                   TASK 201 - USE STUDY

This task is the prerequisite to all other analyses in that
it identifies the pertinent supportability factors related
to the intended use of the new system or equipment.   The
output of this task leads to the definition of the system
maintenance concept and identification of support
alternatives.

This task defines the new system's mission and function,
employment and deployment scenarios, operating maintenance,

transportation, communications, training, resources and
interoperability constraints.

The support factors and constraints identified must be
considered and accommodated during the design and
development of the hardware and/or software.   The results of
this task provide baseline information for tasks 203, 205,
301, and 303 during the applicable phases of the development
process.

ENDTEXT
@22,1
WAIT "PRESS ANY KEY TO CONTINUE"
CLEAR
RETURN


*   PROGRAM:  T202.PRG
*   PROGRAMMER:  Capt. Michael G. Heffner, AFIT/LSG (GAL-89S)
*   DATE: 14 JULY 89

CLEAR
TEXT
        TASK 202 - MISSION HARDWARE, SOFTWARE, AND SUPPORT
                     SYSTEM STANDARDIZATION

This tasks identifies the existing and planned resources in
the Air Force inventory for development of standardization
approaches.   This task identifies program risks caused by
```

standardization or the risks in meeting existing
standardization requirements.

Completion of this task will define supportability and
supportability related design constraints for the new system
which have benefits due to cost, manpower, personnel
training, readiness, integrated diagnostics, or support
policy considerations.

This task will also provide supportability inputs into the
mission hardware and software standardization efforts.

This task should not duplicate other standardization or
parts control programs (i.e., Mil-Std-965 or Mil-Std-680).

```
ENDTEXT
@22,1
WAIT "PRESS ANY KEY TO CONTINUE"
CLEAR
RETURN


*   PROGRAM:   T203.PRG
*   PROGRAMMER: Capt. Michael G. Heffner, AFIT/LSG (GAL-89S)
*   DATE: 14 JULY 89

CLEAR
TEXT
```
              TASK 203 - COMPARATIVE ANALYSIS

This task uses support resource data from existing
operational hardware, etc., to develop a theoretical system
for:
     a. projecting supportability related parameters and
identifying target areas for improvement.
     b. determining the supportability, cost, and readiness
drivers.
     c. identifying any risks in utilizing comparative systems
data in subsequent analysis.

This analysis can reveal design features to be avoided and
design features which increase supportability, safety and
human interface.

The associated support systems must also be analyzed for
utilization, availability, and reliability rates, manpower
utilization, mobility and transportability, etc.,

```
ENDTEXT
@22,1
WAIT "PRESS ANY KEY TO CONTINUE"
CLEAR
RETURN
```

```
*   PROGRAM:  T204.PRG
*   PROGRAMMER: Capt. Michael G. Heffner, AFIT/LSG (GAL-89S)
*   DATE: 14 JULY 89

CLEAR
TEXT
            TASK 204 - TECHNOLOGICAL OPPORTUNITIES
```

This task is performed to identify existing or emerging
technologies which may enhance availability and/or reduce
logistics resource requirements within existing system
constraints.

Technologies to improve performance, capability, mobility,
failure rates, diagnostics, maintenance time, training,
skills, and other support resources should be considered.

Results of this analysis are also used to develop candidates
for preplanned product improvements, initiate technology
transition and supplement technology exploration.

```
ENDTEXT
@22,1
WAIT   "PRESS ANY KEY TO CONTINUE"
CLEAR
RETURN


*   PROGRAM:  T205.PRG
*   PROGRAMMER: Capt. Michael G. Heffner, AFIT/LSG (GAL-89S)
*   DATE:  14 JULY 89

CLEAR
TEXT
            TASK 205 - SUPPORTABILITY AND SUPPORTABILITY
                       RELATED DESIGN FACTORS
```

This task is intended to develop qualitative and
quantitative design characteristics from alternative design
and operational concepts.

This task establishes the objectives, goals, thresholds,
constraints and specification requirements for the support
system.

The results of this task allow alternative support system
approaches to be analyzed and trade-off decisions made to
determine the optimum support alternative. These decisions
and analysis are required to weigh supportability during
alternative system approach analyses and trade-offs.

```
ENDTEXT
@22,1
```

```
WAIT "PRESS ANY KEY TO CONTINUE"
CLEAR
RETURN


*  PROGRAM: T300.PRG
*  PROGRAMMER: Captain Michael G. Heffner, AFIT/LSG
(GAL-89S)
*  DATE: 14 JULY 89

CLEAR
TEXT
   TASK SECTION 300 - PREPARATION AND EVALUATION OF
ALTERNATIVES
```

The tasks in this section are the essence of the system
engineering process. Their intent is to optimize the
support system and develop a system which achieves the best
balance between cost, schedule, performance, and
supportability. The tasks in this section are highly
iterative in nature and are applicable to each phase of
development. The identification of functions, development of
alternatives, and performance of tradeoff analyses must be
conducted concurrently with the development of the design
and operational concept, and to the same level of detail
(i.e., indenture level).

The tasks in this section are:

        Task 301 - Functional Requirements Identification
        Task 302 - Support System Alternatives
        Task 303 - Evaluation of Alternatives and Tradeoff
                   Analysis

```
ENDTEXT
@22,1
WAIT "PRESS ANY KEY TO CONTINUE"
CLEAR
RETURN


*  PROGRAM: T301.PRG
*  PROGRAMMER: Capt. Michael G. Heffner, AFIT/LSG (GAL-89S)
*  DATE: 14 JULY 89

CLEAR
TEXT
      TASK 301 - FUNCTIONAL REQUIREMENT IDENTIFICATION
```

This task is accomplished to identify the operating and
support functions that must be performed for each
alternative design under consideration.

This task begins the identification and development of the complete support requirements for the system.

The preliminary operating, maintenance, design and technology concepts for the baseline comparison systems are used to identify basic system and support system functional requirements. Results are used to asses the design for improvements and as inputs to task 401.

ENDTEXT
@22,1
WAIT "PRESS ANY KEY TO CONTINUE"
CLEAR
RETURN

*   PROGRAM: T302.PRG
*   PROGRAMMER: Capt. Michael G. Heffner, AFIT/LSG (GAL.-89S)
*   DATE: 14 JULY 89

CLEAR
TEXT
      TASK 302 - SUPPORT SYSTEM ALTERNATIVES

As designs are conceptualized, this task defines alternative support systems to be used in tradeoff analysis and evaluations to determine the best support system alternative for development.

This task establishes resource projections, risk factors, etc., for use in trade studies. Task results are used in design decisions to select the optimum design from a supportability viewpoint and the optimum support system design. The results of this task are also used as input to task 303.

ENDTEXT
@22,1
WAIT "PRESS ANY KEY TO CONTINUE"
CLEAR
RETURN

*   PROGRAM: T303.PRG
*   PROGRAMMER: Capt. Michael G. Heffner, AFIT\LSG (GAL-89S)
*   DATE: 14 JULY 89

CLEAR
TEXT
TASK 303 - EVALUATION OF ALTERNATIVES AND TRADEOFF ANALYSES

The tradeoff analyses of this task are conducted to
determine the best support approach, consistent with system
requirements.

* The approach (support, design and operation) which best
satisfies the support needs will have the best balance
between cost, schedule, performance, readiness,
sustainability, and supportability.

* Design changes are recommended when alternative approaches
will enhance supportability.

```
ENDTEXT
@22,1
WAIT "PRESS ANY KEY TO CONTINUE"
CLEAR
RETURN


*    PROGRAM: T400.PRG
*    PROGRAMMER: Capt. Michael G. Heffner, AFIT/LSG (GAL-89S)
*    DATE: 14 JULY 89

CLEAR
TEXT
```

TASK 400
DETERMINATION OF LOGISTIC SUPPORT RESOURCE REQUIREMENTS

The tasks in this section are used to identify and refine
the logistic support resource requirements as the system
progresses through design development.

This portion of the LSA defines the requirements of the
principal Integrated Logistics Support (ILS) elements and
develops initial plans for post production support. The
majority of the LSA Records (LSAR) are completed by these
tasks.

There are three major tasks within this LSA task:

        Task 401 - Task Analysis
        Task 402 - Early Fielding Analysis
        Task 403 - Post Production Support Analysis

```
ENDTEXT
@22,1
WAIT "PRESS ANY KEY TO CONTINUE"
CLEAR
RETURN
```

```
* PROGRAM: T401.PRG
* PROGRAMMER: Capt. Michael G. Heffner, AFIT/LSG (GAL-89S)
* DATE: 14 JULY 89

CLEAR
TEXT
          TASK 401 - TASK ANALYSIS

This task provides the detailed identification of all
support resources needed to support the system and is one of
the most important tasks conducted during Full Scale
Development (FSD).

The analysis provides data needed for provisioning, support
equipment, training and training equipment, facilities,
manpower and personnel, etc.

The performance of this task begins with the availability of
required input from design activities and extends only to
that point when results can be effectively used to develop
necessary ILS documents and for acquisition of the
identified support resources.

ENDTEXT
@22,1
WAIT "PRESS ANY KEY TO CONTINUE"
CLEAR
RETURN




* PROGRAM T402.PRG
* PROGRAMMER:  Capt. Michael G. Heffner, AFIT/LSG (GAL-89S)
* DATE: 14 JULY 89

CLEAR
TEXT
          TASK 402 - EARLY FIELDING ANALYSIS
```

This analysis task is designed to assess the impact of the
introduction of the new system or equipment on existing
systems and resources.

It identifies sources of manpower and personnel, the impact
of failure to acquire the required logistic support
resources, and the essential support resource requirements
for a combat environment.

This task is performed to assure the required support will
be available when the system is fielded. This task also
identifies support requirements in alternative operational
environments and gives the basis for wartime and
mobilization planning requirements.

```
ENDTEXT
@22,1
WAIT "PRESS ANY KEY TO CONTINUE"
CLEAR
RETURN



*  PROGRAM: T403.PRG
*  PROGRAMMER: Capt. Michael G. Heffner, AFIT/LSG (GAL-89S)
*  DATE: 14 JULY 89

CLEAR
TEXT
        TASK 403 - POST PRODUCTION SUPPORT ANALYSIS
```

This task focuses on support items which may be problems
due to future production capability or supply concerns.

Life cycle support requirements for the new system or
equipment are analyzed prior to assure that adequate
logistics support resources will be available during the
system life.

Accomplishing initial iterations of this tasks early in the
design phase can highlight alternative systems with
potential support problems. This data can be used during
system trade-offs to ensure the overall optimum system, and
optimum support system are developed.

```
ENDTEXT
@22,1
WAIT "PRESS ANY KEY TO CONTINUE"
CLEAR
RETURN



*  PROGRAM: T500.PRG
*  PROGRAMMER: Capt. Michael G. Heffner, AFIT/LSG (GAL-89S)
*  DATE: 14 JULY 89

CLEAR
TEXT
        TASK SECTION 500 - SUPPORTABILITY ASSESSMENT
```

There are two general areas of supportability assessment:

        (1) those made prior to d   yment as part of the
formal test and evaluation pr   am.

        (2) assessment after deployment through analysis of

operational, maintenance, and supply data on the system or equipment in the operational environment.

There is only one major task in this task section:

Task 501 - Supportability Test, Evaluation, and Verification

ENDTEXT
@22,1
WAIT "PRESS ANY KEY TO CONTINUE"
CLEAR
RETURN

* PROGRAM: T501.PRG
* PROGRAMMER: Capt. Michael G. Heffner, AFIT/LSG (GAL-89S)
* DATE: 14 JULY 89

CLEAR
TEXT
   TASK 501 - SUPPORTABILITY TEST, EVALUATION AND VERIFICATION

The purpose of this task is to provide detailed plans for system test and evaluation by defining test and evaluation strategy, establishing program objectives, and analyzing prior test results.

Supportability assessment results are used to correct deficiencies, update support requirements, identify contractor progress toward achievement of contract goals, and to update the LSA data base.

This task should be integrated into the entire system test and evaluation program to avoid duplication of effort and take advantage of other test requirements.

ENDTEXT
@22,1
WAIT "PRESS ANY KEY TO CONTINUE"
CLEAR
RETURN

```
* PROGRAM: M101-1.PRG
* PROGRAMMER: Capt. Michael G. Heffner, AFIT/LSG (GAL-89S)
* DATE:   14 JULY 1989

DO WHILE .T.
STORE " " TO mCHOICE

CLEAR
TEXT
          MIL-STD-1388-1A, LOGISTICS SUPPORT ANALYSIS
       TASK 101 - DEVELOPMENT OF AN EARLY LSA STRATEGY

101.1  PURPOSE.  To develop a proposed LSA strategy for use
early in an acquisition program, and to identify the LSA
tasks and subtasks which provide the best return on
investment.

ENDTEXT

* Generate screen up/screen down menu and screen number

@19,35 SAY "SCREEN 1 OF 7"

@20,1 TO 22,79 DOUBLE
@21,3 SAY "DO YOU WANT TO CONTINUE? (Y/N) "
@21,45 SAY "ENTER CHOICE AND PRESS ENTER " GET mCHOICE

READ

IF mCHOICE="N" .OR. mCHOICE="n"
    CLEAR
    RETURN
ENDIF
IF mCHOICE="Y" .OR. mCHOICE="y"
    CLEAR
    EXIT
ENDIF

ENDDO

* Screen 2 of 7

DO WHILE .T.
STORE " " TO mCHOICE

CLEAR
TEXT
```

101.2 TASK DESCRIPTION.

101.2.1 Prepare potential supportability objectives for the new system/equipment, identify and document the risk of accomplishing the supportability objective, and identify proposed LSA tasks and subtasks to be performed in each phase of the acquisition program. Identify the organizations to perform each task and subtask. The proposed supportability objectives and analysis tasks and subtasks shall be based on the following objectives:

ENDTEXT

* Generate screen up/screen down menu and screen number

@19,35 SAY "SCREEN 2 OF 7"

@20,1 TO 22,79 DOUBLE
@21,3 SAY "DO YOU WANT TO CONTINUE? (Y/N) "
@21,45 SAY "ENTER CHOICE AND PRESS ENTER " GET mCHOICE

READ

IF mCHOICE="N" .OR. mCHOICE="n"
    CLEAR
    RETURN
ENDIF
IF mCHOICE="Y" .OR. mCHOICE="y"
    CLEAR
    EXIT
ENDIF

ENDDO

* Screen 3 of 7

DO WHILE .T.
STORE " " TO mCHOICE

CLEAR
TEXT
        MIL-STD-1388-1A, LOGISTICS SUPPORT ANALYSIS
        TASK 101 - DEVELOPMENT OF AN EARLY LSA STRATEGY

101.2.1 (Continued)

    a. Probable design, maintenance concept, operational approaches for the new system/equipment and gross estimates

of reliability and maintainability (R&M), O&S costs,
logistic support resources, and readiness characteristics of
each design and operational approach.

b. The availability, accuracy and relevance of
readiness, O&S cost, and logistic support resources data
required to perform the proposed LSA tasks and subtasks.

c. The potential design impact of performing the LSA
tasks and subtasks.

ENDTEXT

* Generate screen up/screen down menu and screen number

@19,35 SAY "SCREEN 3 OF 7"

@20,1 TO 22,79 DOUBLE
@21,3 SAY "DO YOU WANT TO CONTINUE? (Y/N) "
@21,45 SAY "ENTER CHOICE AND PRESS ENTER " GET mCHOICE

READ

IF mCHOICE="N" .OR. mCHOICE="n"
    CLEAR
    RETURN
ENDIF
IF mCHOICE="Y" .OR. mCHOICE="y"
    CLEAR
    EXIT
ENDIF

ENDDO

* Screen 4 of 7

DO WHILE .T.
STORE " " TO mCHOICE

CLEAR
TEXT
        MIL-STD-1388-1A, LOGISTICS SUPPORT ANALYSIS
        TASK 101 - DEVELOPMENT OF AN EARLY LSA STRATEGY

101.2.2 Estimate the cost to perform each task and subtask
identified under 101.2.1 and the cost effectiveness of
performing each, given the projected costs and schedule
constraints.

101.2.3 Update the LSA strategy as required based on
analysis results, program schedule modifications, and
program decisions.

```
ENDTEXT

* Generate screen up/screen down menu and screen number

@19,35 SAY "SCREEN 4 OF 7"

@20,1 TO 22,79 DOUBLE
@21,3 SAY "DO YOU WANT TO CONTINUE? (Y/N) "
@21,45 SAY "ENTER CHOICE AND PRESS ENTER " GET mCHOICE

READ

IF mCHOICE="N" .OR. mCHOICE="n"
   CLEAR
   RETURN
ENDIF
IF mCHOICE="Y" .OR. mCHOICE="y"
   CLEAR
   EXIT
ENDIF

ENDDO

* Screen 5 of 7

DO WHILE .T.
STORE " " TO mCHOICE

CLEAR
TEXT
         MIL-STD-1388-1A, LOGISTICS SUPPORT ANALYSIS
         TASK 101 - DEVELOPMENT OF AN EARLY LSA STRATEGY


101.2   TASK INPUT.

101.3.1  Expected mission and functional requirements for
the new system/equipment.

101.3.2  Expected program funding and schedule constraints
and other known key resource constraints that would impact
support of the system/equipment such as projected deficits
in numbers or skills of available personnel, limited
priorities on strategic material, etc.

ENDTEXT

* Generate screen up/screen down menu and screen number

@19,35 SAY "SCREEN 5 OF 7"

@20,1 TO 22,79 DOUBLE
```

```
@21,3 SAY "DO YOU WANT TO CONTINUE? (Y/N) "
@21,45 SAY "ENTER CHOICE AND PRESS ENTER " GET mCHOICE

READ

IF mCHOICE="N" .OR. mCHOICE="n"
    CLEAR
    RETURN
ENDIF
IF mCHOICE="Y" .OR. mCHOICE="y"
    CLEAR
    EXIT
ENDIF

ENDDO


* Screen 6 of 7

DO WHILE .T.
STORE " " TO mCHOICE


CLEAR
TEXT
        MIL-STD-1388-1A, LOGISTICS SUPPORT ANALYSIS
        TASK 101 - DEVELOPMENT OF AN EARLY LSA STRATEGY


101.3.3  Data bases available from the requiring authority
for use in LSA tasks.

101.3.4  Delivery identification of any data item required.

101.3.5  Previously conducted DOD or Service mission area
and system/equipment analyses which are pertinent to the new
system/equipment.

ENDTEXT

* Generate screen up/screen down menu and screen number

@19,35 SAY "SCREEN 6 OF 7"

@20,1 TO 22,79 DOUBLE
@21,3 SAY "DO YOU WANT TO CONTINUE? (Y/N) "
@21,45 SAY "ENTER CHOICE AND PRESS ENTER " GET mCHOICE

READ

IF mCHOICE="N" .OR. mCHOICE="n"
    CLEAR
    RETURN
```

```
ENDIF
IF mCHOICE="Y" .OR. mCHOICE="y"
    CLEAR
    EXIT
ENDIF

ENDDO

* Screen 7 of 7

DO WHILE .T.
STORE " " TO mCHOICE
CLEAR
TEXT
        MIL-STD-1388-1A, LOGISTICS SUPPORT ANALYSIS
        TASK 101 - DEVELOPMENT OF AN EARLY LSA STRATEGY


101.4  TASK OUTPUT.

101.4.1  An LSA strategy outlining proposed supportability
objectives for the new system/equipment and proposed LSA
tasks and subtasks to be performed in each phase of the
acquisition program which provide the best return on
investment. (101.2.1,101.2.2)

101.4.2  LSA strategy updates as applicable. (101.2.3)

ENDTEXT

* Generate screen up/screen down menu and screen number

@19,35 SAY "SCREEN 7 OF 7"

@20,1 TO 22,79 DOUBLE
@21,3 SAY "PRESS C AND ENTER TO CONTINUE" GET mCHOICE

READ

IF mCHOICE="C" .OR. mCHOICE="c"
    CLEAR
    RETURN
ENDIF

ENDDO
```

Appendix O: LSA Application Guidance

TASK 101 - DEVELOPMENT OF AN EARLY LSA STRATEGY

REQUIRED FOR:

The LSA strategy is closely related with the acquisition program strategy. The LSA strategy should generally be available prior to the preparation of any solicitation documents containing or related to LSA. The LSA strategy should be used as a guide to developing such documents. Strategy planning should include how support requirements will be identified, developed, validated, and implemented.

By analyzing probable design, operational, and supportability approaches and characteristics the procuring agency can develop and LSA program to maximize the impact of supportability requirements on system design.

Implementing, supporting and using commands have input into the LSA strategy.

WHEN:

The LSA strategy is initially developed at program inception concurrent with the development of the acquisition strategy. The LSA strategy is normally updated prior to the initiation of the next acquisition phase to reflect current program strategy. The LSA strategy is normally developed by the government.

APPLICATION GUIDANCE:

The LSA strategy and resulting LSA tasks MUST be integrated into the system engineering process, including the following: Reliability Program (Mil-Std-470); Maintainability Program (Mil-Std-785, and Mil-Std-781); Human Factors Program (Mil-H-46855); System Safety Program (Mil-Std-882); Parts Control (Mil-Std-965); Reliability Centered Maintenance (Mil-Std-1843); FMECA (Mil-Std-1629); and Repair Level Analysis (Mil-Std-1390). This list is by no means complete and other system engineering programs should be considered as required. Talk with the engineers and coordinate!! Include the LSA program in the SEMS.

TASK 102 -- LOGISTICS SUPPORT ANALYSIS PLAN (LSAP)

REQUIRED FOR:

The LSAP is the basic tool for establishing and executing an effective LSA program. The LSAP may be a stand alone document or part of the program's Integrated Support Plan (ISP), when an ISP is required.

The LSAP should be a contractually binding document. If the LSAP is part of the ISP, some of the LSAP's contractual leverage is lost. The LSAP should successfully address the interrelationship between the LSA efforts and the systems engineering efforts. The LSAP should reflect current program strategy, objectives and schedules.

WHEN:

The LSAP is generally prepared in Concept Exploration (CE) and updated during all subsequent phases.

It is recommended that the LSAP be delivered prior to the LSA Guidance Conference. Allow sufficient time for review.

For Source Selections, a draft LSAP can be beneficial in understanding how the contractor perceives the ILS effort and understands the Government's requirements. This can be structured into the Instructions to Offerors (ITO) and source selection criteria. (Note: normally DI-L-7017A is required)

APPLICATION GUIDANCE:

The LSAP should reflect the integration of the LSA program into the system engineering process and should reflect the interfaces between the selected LSA tasks and other system engineering specialties (i.e., reliability, safety, human factors, etc.).

The schedule and milestone requirements should reflect those agreed upon by the contractor and government during discussions.

TASK 103 - PROGRAM AND DESIGN REVIEWS

REQUIRED FOR:

This subtask is applicable to design and design modification efforts, and is generally not applicable to non developmental efforts.

Review of design information from a support viewpoint and in monitoring progress, quality and consistency of the LSA effort.

This task requires that the performing activity plans and provides for LSA program input and participation in program reviews in a timely and controlled manner.

WHEN:

Generally required for all phases.

The abili y to influence the system design for supportability is greatest during the initial phases of the design process.

APPLICATION GUIDANCE:

Mil-Std-1521 is the implementing standard for reviews.

Detailed LSA reviews provide more detailed coverage of all LSA tasks specified in the Statement of Work (SOW).

This task must be integrated with Task 103 of the following programs (as applicable):

Mil-Std-470A, Maintainability Program Requirements
Mil-Std-785B, Reliability Program Requirements
Mil-Std-882B, System Safety Program Requirements
and others as appropriate.

The criteria set forth by you in these tasks should reflect the appropriate reporting requirements as dictated by the design approach, level of design to be completed, and to ensure design completeness.

An integral part of this review process is the detailed guidance conference, which should be held as soon a practical after contract award to assure a thorough and consistent understanding of the LSA requirements by all parties.

Regular contact between the procuring agency and the contractor can help ensure that supportability is receiving adequate design consideration and that design for

supportability is being accomplished in a cost effective manner.

Do not hold reviews concurrently (i.e., two separate reviews at the same time) if critical personnel are required to be at both reviews.

LSA reviews are best held prior to technical reviews. This helps ensure the LSA effort is supporting the technical effort, as required.

Prior to reviews, required documentation should be delivered with adequate time for review (30 days should be sufficient).

Thorough design reviews help ensure that supportability analyses are accomplished and are being used in system design.

All program functional offices should provide agenda inputs for their areas of design review responsibility.

TASK 201 - USE STUDY

REQUIRED FOR:

Significant quantitative factors identified by the use study are incorporated into the Joint Mission Need Statement (JMNS). Additionally, the use study identifies operational and mission requirements.

The use study is a comprehensive analysis of how the new system will be used and supported in its mission area (in both wartime and peacetime) based on an evaluation of existing system(s) performing similar missions.

WHEN:

This task is prerequisite to all other LSA tasks. It is normally accomplished in Pre-Concept Exploration and updated through Full Scale Development (FSD). Once operation and support requirements for the new system are identified field visits to existing units which simulate those environments can be made.

Updates to this task are generally applicable through Full Scale Development (FSD).

NOTE: The Government may have to provide the contractor a substantial amount of information in order for the contractor to adequately perform this task.

APPLICATION GUIDANCE:

If supportability factors for the system are known they should be documented on the LSAR A.

Additional information can be provided by the environmental life cycle determined under Mil-Std-810D.

This task can provide input to Mil-h-46855B, Para. 3.2.1.1.2, Estimates of Potential Operator/Maintainer Process Capabilities

The results of this task can provide input to Mil-Std-470A,

Maintainability Program, Task 201, Maintainability Modelling; and, Mil-Std-785B, Reliability Program, Task 201, Reliability Modelling.

Field visits to operational units and depots can provide a significant input into the use study in terms of identifying existing capabilities, resources, and problems, once the operational environment for the new system/equipment is

identified in sufficient detail to determine existing
operational units and depots that would likely be involved
in the operations and support of the new system/ equipment.
Early identification of sites to be visited is important to
avoid schedule problems at the site.   The government should
identify the locations that should be visited.   To avoid
problems in setting up visits, the government should contact
sites to be visited identifying the number of people
visiting, dates, length of visits, ensure contractor visit
requests are properly forwarded to the visiting site, and
should plan to escort the contractor into the site.

The results of this task are used as input to program
engineering and design guidelines, and as baseline
information for the LSA tasks 203, 205, 301, and 303.

TASK 202 - MISSION HARDWARE, SOFTWARE, AND SUPPORT
SYSTEM STANDARDIZATION

REQUIRED FOR:

To identify the existing and planned resources in the Air
Force inventory for development of standardization
approaches and to identify program risks caused by
standardization or the risks in meeting existing
standardization requirements.

This task defines supportability and supportability related
design constraints. This task provides supportability
inputs into mission hardware and software standardization
efforts.

Initial standardization studies in Concept Exploration
provide (1) constraints on development to incorporate
compatibility with selected standard components and (2)
identification of software, support equipment requiring
development for unique application to the system.

WHEN:

This task is generally initiated during Concept Exploration
and iterated through Full Scale Development to successively
lower indenture levels as the system design becomes further
defined.

While this task is performed at a very high system level
during the conceptual phase, as details of the system and
equipment become available the results are used as inputs to
or in conjunction with LSA tasks 201, 204, 302, and 401.
Task results are also used as inputs to design requirements,
guidelines and specifications.

APPLICATION GUIDANCE:

Generally if a formal standardization program (IAW
Mil-Std-965) is established Tasks 202.2.2 and 202.2.3 are
not specified. The formal standardization program can
normally provide the necessary data in lieu of these tasks.

If a formal standardization program is established
(Mil-Std-965a, Parts Control Program) coordinate LSAR data
requirements.

Parts control program should integrate with Mil-Std 785,
Reliability Program, Tasks 206 (electronic parts/circuit
tolerance analyses), 207 (parts program) and 208
(reliability critical items).

Utilizing existing logistic support resources can reduce

life cycle cost, enhance readiness, minimize the impact of the introduction of a new system into the inventory and increase the mobility of the unit acquiring the new system. Care must be taken to assure that poorly performance items are not slated for standardization.

Standardization should result in reduced: parts stockage, design risk, and proliferation of new items in the inventory.

This task has the greatest benefit when it is accomplished before the start of detailed design. This avoids the high cost of redesign and helps assure that the optimum level of standardization is achievable.

This task should be performed to a level commensurate with the anticipated level of design.

Disadvantages of standardization includes restrictions on design freedom, and restrictions/limits on the use of advanced technologies and innovative design approaches.

Directed standardization could result in use of support equipment that is not as effective or economical as specifically design equipment for the system.

NATO interoperability requirements may also impose standardization requirement on the system.

This task provides necessary input data to LSA Task 205, Supportability Design Factors.

TASK 203 - COMPARATIVE ANALYSIS

REQUIRED FOR:

A major key to having an effective LSA program is the
efficient analysis and use of the data obtained on
comparative systems.   This is sometimes called a Historical
Data Review.

Three main reasons for accomplishing this task are:

(1)   To develop a sound foundation for developing system/
equipment parameters and targeting areas for improvement.
(2)   To identify supportability, cost and readiness
drivers.
(3)   To identify risks in using comparative system data
in subsequent analyses.

WHEN:

The comparative analysis is normally initiated during
Concept Exploration and updated throughout Full Scale
Development.

APPLICATION GUIDANCE:

Comparative systems and subsystems to be used in this
analysis are normally identified by the requiring authority

Output from this task provides input to Mil-Std-470A,
Maintainability Program, Task 201 (Maintainability
Modelling) and Task 202 (Maintainability Allocations).

Output from this task provides input to Mil-Std-470A,
Reliability Program, Task 201 (Reliability Modelling) and
Task 202 (Reliability Allocations).

This task can also provide useful information regarding
human factors by presenting comparative systems to analyze
from a human factors engineering viewpoint.

Subtasks 203.2.1 and 203.2.2 provide for two different
levels of analysis detail.   Subtask 203.2.1 is very general
and suitable for when only a general comparative system
description is required.   Task 203.2.2 should be used when
more detail is required. Remember, as the amount of detail
increases so does the cost of the analysis.

Assumptions used in these analyses play and important role
and should be examined carefully.

Supportability problems in current systems can provide

265

significant insight into areas for improvement during development.

Field visits (LSA subtask 201.2.3) can be very instrumental in identifying problem areas with current systems.

The timing and detail of this task must be coordinated with the design effort to allow the results to be effectively and cost efficiently used to effect system/equipment design.

Concept Exploration phase analyses would be at the system and subsystem level so that system and subsystem level constraints could be defined prior to the start of Demonstration/Validation.

Care must be taken to assure that true supportability, cost and readiness drivers are identified and not their effect. For example, supply support cost would not be a driver if it was the result of poor subsystem/component reliability. The subsystem/component reliability would be the driver.

When citing subtasks 203.2.5 and 203.2.6, the requiring authority must consider the data bases available to support supportability, cost and readiness driver identification.

Different BCS's may be developed to represent different design alternatives in an attempt to maximize cost effectiveness.

An effective working relationship among design, logistics and human engineering and training personnel can produce the appropriate design, maintenance concept, and training program required to support new technologies.

The results of LSA task 201, Use Study, identify operation and support scenarios for use in selecting and developing the BCS.

System readiness is often bounded by the availability and capability of the personnel who must operate and maintain the system.

TASK 204 - TECHNOLOGICAL OPPORTUNITIES

REQUIRED FOR:

To identify existing or emerging technologies which may enhance readiness and supportability and reduce operating and support costs.

This task should also identify risks, impacts and transition capabilities of the technologies considered.

Results are also used to identify candidates for pre-planned product improvement (P3I).

WHEN:

This task is normally initiated during Concept Exploration and updated during Demonstration/Validation. It is selectively applicable to Full Scale Development.

APPLICATION GUIDANCE:

Trade studies should be conducted per LSA task 303 to demonstrate how emerging technologies would enhance weapon system availability, reduce logistic resource requirements, and meet system constraints.

The results of this task are used as input to LSA tasks 205, 301 and 303.

Technological opportunities that are attainable may be used to update the Baseline Comparison System (BCS) developed in LSA task 203.

Technological improvements generally result from improved components.

There should be incentives to ensure that technologies are adapted which have the potential to reduce logistic resource requirements and improve readiness.

This task should be performed by design personnel in conjunction with supportability specialists.

Attention should be devoted to the application of technological advancements to system/equipment supportability, cost and readiness drivers and areas where qualitative problems were identified in comparative systems (LSA task 203).

Knowledge of lab efforts can help considerably.

Reliability and Maintainability Models developed under Task
201 of Mil-Std-785 and Mil-Std-470, respectively, may be
used to provide information regarding the potential
increases in R&M available.

TASK 205 - SUPPORTABILITY AND SUPPORTABILITY RELATED DESIGN FACTORS

REQUIRED FOR:

To develop qualitative and quantitative design characteristics and targets of improvements from alternative design and operational concepts.

This task provides data for program decisions, and test and evaluation planning.

WHEN:

This task is normally initiated during Concept Exploration and updated throughout Demonstration/Validation.

Subtask 205.2.3 is generally applicable through Full Scale Development.

Subtask 205.2.5 is usually only applicable during Demonstration/Validation.

APPLICATION GUIDANCE:

During Concept Exploration the results of this task and the results of LSA tasks 201, 203, 204, and 303 will provide support goals, objectives, thresholds and constraints.

Task 205.2.1 quantifies the supportability impacts of alternative concepts which serve as a basis for the remaining subtasks.

Overall system/equipment objectiv s, goals or thresholds must be allocated and translated to arrive at supportability requirements to be include in specifications or other documents.

When performing Task 205.2.3 consideration should be given to possible system level supportability incentives which may be included in the contract.

Supportability and supportability related design objectives will normally be developed during Concept Exploration. These objectives are established based on the results of previous mission and support systems definition tasks, especially, the opportunities identified as a result of Task 204. During Demonstration/Validation goals and thresholds (Task 205.2.5) are normally established. Thresholds represent minimum essential levels of performance that must be satisfied at specific points in the acquisition.

The LSAR A record should be completed using the results of

subtask 205.2.3.

LSA tasks 205 and 301 are used as input for LSA task 401.

Mission requirements and supportability constraints developed in LSA tasks 201, 202, 203 and 204 must be used in LSA subtask 205.2.1 to develop a compatible set of Reliability and Support (R&S) objectives. R&S objectives must be translated into (1) supportability objectives that govern system design and (2) logistic support parameters that govern design of the logistic support system.

An initial estimate of the system's supportability design factors may be derived from the performance parameters of the BCS (LSA task 204) which incorporates projected design enhancements.

The results of this task provide input into LSA tasks 301, 302, and 303.

This task may utilize input from the Maintainability Modelling and Reliability Modelling tasks of Mil-Std-470 and Mil-Std-785, respectively, and Mil-H-46855B, paragraph 3.2.1.1, Defining and Allocating System Functions.

This task may provide input to the Maintainability and Reliability Allocation tasks of Mil-Std-470 and Mil-Std-785.

TASK 301 - FUNCTIONAL REQUIREMENTS IDENTIFICATION

REQUIRED FOR:

This task identifies the operation and maintenance tasks required to be performed in order to operate and maintain the new system/equipment.

Results of this task are also used to consider design improvements.

WHEN:

This task is normally initiated during Concept Exploration and updated throughout Full Scale Development.

APPLICATION GUIDANCE:

This task should use the Baseline Comparison System (BCS) preliminary operating, maintenance, design, and technology concepts to identify basic system and support system functional requirements.

Design driven tasks will be reflected through the use of gross requirements to establish alternative means (procedures, flows, hardware) for accomplishing the task for the trade studies of LSA task 302.

The output is used as input to Task 401 and to establish the LSA Record B, C, and D records.

The FMECA is implemented and conducted using Mil-Std-1629. Note, the requirement to perform the FMECA must be tasked specifically in the Statement of Work. LSA subtask 301.2.4.1 requires the use of FMECA data.

Document the results of the FMECA in LSA Record B, B1 and B2 records.

    LSA B Record   -   Item Reliability and Maintainability
                       Characteristics
    LSA B1 Record - Failure Modes and Effects Analysis
    LSA B2 Record - Criticality and Maintainability
                      Analysis

The LSA A Record, Operation and Maintenance Requirements, is required as input. LSA task 205.2.3 completes the LSA A record.

LSA subtask 301.2.4.1 (and Mil-Std-1629, Failure Modes, Effects, and Criticality Analysis, tasks 101, 102, 103) is required to complete the LSA B2 Record.

The LSA B Record, completed by LSA subtask 301.2.1, and LSA B1 record, completed by LSA subtask 301.2.4, are required as input for LSA task 401.

LSA subtasks 301.2.4, and LSA tasks 302, 303, and 501 data are used to complete the LSA C Record, Operation and Maintenance Task Summary.

LSA tasks 301, 205 and 401 data are used to complete the LSA D Record, Operation and Maintenance Task Analysis.

LSA subtask 301.2.4.2 specifies an Reliability Centered Maintenance (RCM) analysis be performed.

LSA subtask 301.2.4.3 identifies Operation and Support (O&S) tasks not identified by either the FMECA or RCM.

This tasks uses the results of the use study of Task 201 and the supportability, cost, and readiness drivers from Task 203.

Special emphasis should be placed on the functional requirements which are supportability, cost, and readiness drivers.

Identification of these drivers provide a basis for developing new approaches or design concepts which enhance supportability.

Identification of new functional requirements provide the basis for management attention due to supportability risks.

Functional flow block diagrams are useful in identifying functional requirements and establishing the relationships between functions.

Task 301 is closely related to Mil-Std-470, Task 204 FMECA Maintainability Information.

Th results of the following tasks can provide input to this task.
    (a)   Mil-Std-470A, Task 203 Maintainability Predictions.
    (b)   Mil-Std-785B, Task 203 Reliability Predictions.
    (c)   Mil-H-46855, paragraph 3.2.1.3, Analysis of Tasks.

This task requires the following tasks as input.
    (a)   Mil-Std-1629, Procedures for performing a FMECA, Tasks 101, 102 and 103.
    (b)   Mil-Std-1843, Reliability Centered Maintenance.

The results of these tasks may be used as input to the following tasks.

Mil-Std-470A, Task 205 Maintenance Analysis and Task 206
Maintenance Design Criteria.
Mil-Std-882B, System Safety Program, applicable Hazard
Analyses.

TASK 302 - SUPPORT SYSTEM ALTERNATIVES

REQUIRED FOR:

Tasks results are used to aid design decisions and to select
optimum design from a supportability perspective and an
optimum support system design.

WHEN:

Subtasks that establish support system alternatives are
usually required during Concept Exploration. Subtasks that
provide alternative support plans generally apply to Full
Scale Development but may be applied during
Demonstration/Validation.

APPLICATION GUIDANCE:

LSA task 302 results are input into LSA tasks 303 and 501
and used with LSA subtasks 301.2.4 and 401.2.4 to develop
the LSAR C Record, Operation and Maintenance Task Summary.

This task uses data from the following as input.
    Mil-Std-1388-1A, Task 301 Functional Requirements
Identification.
    Mil-Std-1388-1A, Task 205 Supportability Design
Factors.
    Mil-Std-470A and Mil-Std-785B, Maintainability and
Reliability Predictions.
    Mil-Std-882, appropriate Hazard Analysis for
alternatives under consideration.
    Mil-H-46855, paragraph 3.2.1.3, Equipment Selection

The results of this task are used as input by LSA Tasks 303
and 403.

TASK 303 - EVALUATION OF ALTERNATIVES AND TRADEOFF ANALYSIS

REQUIRED FOR:

Logistics can best influence design when it can be considered during the design tradeoff process, early in the system development cycle.

Tradeoffs and evaluations are performed to determine the best approach (support, operation and design) which satisfies the support needs with the best balance between cost, schedule, performance, readiness, sustainability, and supportability.

WHEN:

The subtasks within this task are normally initiated during Concept Exploration (with the exception of LSA subtask 303.2.7, Repair Level Analysis (RLA), which is generally applicable during Demonstration/Validation). The subtasks are continually iterated throughout Full Scale Development.

APPLICATION GUIDANCE:

After Task 302 has been performed and the various support alternatives are outlined, the tradeoff analyses of this task are conducted to determine the best support approach for the system requirements. Recommendations are made when changes in design will enhance supportability.

Repair Level Analysis (RLA) - Determines whether components should be repaired, and if so, at what level. The RLA output provides input into both the maintenance planning and maintainability design activities. RLA should be performed selectively during Concept Exploration.

Reliability Centered Maintenance (RCM) - RCM identifies maintenance tasks required to retain inherent system reliability.

RCM identifies failure modes requiring additional design evaluation, establishes scheduled maintenance tasks for inclusion in technical data, and establishes overhaul selection procedures for end items and components.

Diagnostic Tradeoffs - Establish diagnostic capabilities inherent in the system. Support equipment, manpower and personnel considerations and changes in maintenance concept are normally considered during the tradeoff process.

Survivability Tradeoffs - Reducing vulnerability can mean rapid restoration of force levels and increased

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sustainability of combat capabilities. Benefits of increased survivability can only be realized when logistics support system can restore the damaged, but recoverable, items to operational condition close to the battle area.

Data from this task is used to complete LSAR C Record, Operation and Maintenance Task Summary. Data from subtasks 303.2.6 and 303.2.8 are required as input to subtask 401.2.3 and for completion of the LSA E Record, Support Equipment and Training Material Description and Justification, and the LSA E2 Record, Unit Under Test Description and Justification.

Data from subtasks 303.2.5 and 303.2.6 are required as input to subtasks 401.2.3, and 401.2.4 along with the LSAR D1 Record, Personnel and Support Requirements, for completion of the LSAR G Record, Skill Evaluation and Justification.

Data from subtask 303.3.12 is required as input to subtask 401.2.7 for completion of the LSAR J Record, Transportability Engineering Characteristics.

The results of this task provide input to the following.

Mil-Std-470, Task 206 Maintenance Design Criteria.
Mil-H-46855, Paragraphs 3.2.1.4 and 3.2.2, System Design.

TASK 401 - TASK ANALYSIS

REQUIRED FOR:

This is one of the most important tasks during Full Scale
Development (FSD). It provides detailed information on all
support resources needed to support the system.

This task produces data needed for provisioning, support
equipment, training and training equipment, facilities,
manpower and personnel, etc..

This task provides most of the data for the LSAR.

WHEN:

There is a limited time period during which the performance
of this task is cost effective.   It begins with the
availability of required input from design activities and
extends only to that point which allow time for analysis
results to be used to develop the necessary ILS documents
which identify the support resources required to be
developed.

This task is most applicable during Full Scale Development.

APPLICATION GUIDANCE:

Task 401 requires input from LSA task 301.2.4, 302, 303, and
501.

The results of LSA tasks 205 and 301 are used as input for
subtask 401.2.1, Task Analysis.

The results of this task are used to complete the LSAR D
Record, Operation and Maintenance Task Analysis, and the
LSAR C Record, Operation and Maintenance Task Summary.

The results of LSA task 301.2.4 are input into this task,
and the results are used to complete the LSAR B2 Record,
Criticality and Maintainability Analysis.

The results of subtask 401.2.1 (with input from LSA tasks
302,303, and 501) are used to complete the LSAR D1 Record,
Personnel and Support Requirements.

Subtask 401.2.3 requires input from subtasks 302.2.6,
303.2.8 and is used to complete the LSAR E and E2 Records,
Support Equipment or Training Material Description and
Justification and Unit Under Test (UUT) and Automatic
Program(s), respectively.

Subtask 401.2.3 also requires input from subtask 202.2.1 and is used to complete the LSAR F Record, Facility Description and Justification.

Subtasks 401.2.3 and 401.2.4 require input from subtasks 303.2.5 and 303.2.6. The results of 401.2.3 and 401.2.4 are used, along with data from the LSAR D1 Record (Personnel and Support Requirements) to complete the LSAR G Record, Skill Evaluation and Justification.

Subtask 401.2.7 requires input from the results of tasks 205, 301, and 303.2.12. The results of subtask 401.2.7 are used to complete the LSAR J Record, Transportability Engineering Characteristics.

The results of subtask 401.2.8 are used to complete the LSAR H and H1 Records, Support Item Identification and Support Item Identification (Application Related) records, respectively.

Subtask 401.2.9 requires validation of the LSAR by actual performance of the Operation and Maintenance tasks identified.

Integrate this validation with other testing requirements.

The results of this task are used in performance of Task 402, Early Fielding Analysis.

This task also may receive input from the following.

   Mil-Std-46855, paragraph 3.2.1.3, Analysis of Tasks.
   Mil-Std-46855, paragraph 3.2.2, Human Engineering in Detailed Design.
   Mil-Std-470A, Task 207 Input to LSA.
   Mil-Std-470A, Task 301 Maintainability Demonstration and Task 104 Data Analysis & Corrective Action.
   Mil-Std-882, Tasks 203 and 204, Subsystem and System Hazard
Analysis; Task 205 O&S Hazard Analysis; Task 205 Occupational Health Hazard Assessment.
   Mil-Std-785B, Task 206 Tolerance Analyses; Task 207 Parts Program; Task 208 Reliability Critical Items; Task 209 Effects of Functional Testing, PHS&T, and Maintenance; and Task 104 FRACAS.

TASK 402 - EARLY FIELDING ANALYSIS

REQUIRED FOR:

To assure effective fielding of the new system will required
resources in place.   Identifies projected resource
shortfalls and their impact on operations, readiness and
supportability.

Identifies alternative actions.

WHEN:

This task is most applicable during Full Scale Development
and for system changes/modifications during
production/operations.

APPLICATION GUIDANCE:

This task requires input from LSA Tasks 401, 303 and 501.

The results of this task are to assess the impact of
fielding the system on the operations and support community.

The results of this task are also used by LSA Task 403.

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TASK 403 - POST PRODUCTION SUPPORT ANALYSIS

REQUIRED FOR:

Required to identify any potential production capability or supply problems, analyze alternative solutions and potential risks/costs, and to outline action strategies.

Used to forecast supply and material shortages.

WHEN:

This task is most applicable during production. However, there may be cases where it is applicable to Full Scale Development (see below).

APPLICATION GUIDANCE:

Integration of Post Production Support (PPS) into initial design activities may help ensure continued system supportability and readiness while maintaining an economical logistics support infrastructure after initial production. The basis steps for this are as follows.

(1)   Screen provisioned items to determine those items that can be eliminated as PPS candidates. Common and Mil-Spec equipment can normally be eliminated, along with items with support codes other than "P."   Perform these steps against the entire system, including Support Equipment.

(2)   Examine the remaining items to determine if support problems exist. Potential support problems may arise from diminishing sources, material shortages, production lead times, sole source procurements, configuration changes, contractor repaired items, price, minimum quantity buys, special facility requirements, specialized tooling requirements, manufacturing skill availability, foreign sources, etc..

(3)   Develop alternative solutions, considering the following: redesign, modification, life cycle buyouts, fund and maintain a production line, reverse engineer, new source, replace system/subsystem, support with equipment from a phased out system, or no action required at this time.

If PPS is initiated during design support problems can be addressed during early tradeoff analyses.

This task utilizes input from LSA Task 402, and Mil-Std-785B Task 208, Reliability Critical Items.

TASK 501 - SUPPORTABILITY TEST, EVALUATION, AND
         VERIFICATION

REQUIRED FOR:

This task provides detailed supportability test and
evaluation plans for inclusion in the Test and Evaluation
Master Plan (TEMP). This task should provide supportability
objectives, criterion, resource requirements, and schedule
input. Test results will be analyzed, any deficiencies will
be identified for corrective action and update of the LSA
data base.

APPLICATION GUIDANCE:

Integrate this task with the entire test and evaluation
program. Consider at least the following.

    Mil-Std-785 and Mil-Std-781:
        (a) Environmental Stress Screening
        (b) Reliability Development/Growth Testing
        (c) Reliability Qualification
        (d) Production Reliability Acceptance Tests
    Mil-Std-470:
        (a) Maintainability Demonstration
Obviously, IOT&E and other tests/demonstrations required
should be considered.

This task also utilizes input from LSA tasks 205, and 401
(SSP), and provides input to LSA task 402.

Appendix P: MENU.PRG Program Listing

```
*   PROGRAM:  MENU.PRG
*   PROGRAMMER:  Capt Michael G. Heffner, AFIT/LSG (GAL-89S)
*   DATE: 25 JULY 89


STORE " " TO mCHOICE
@18,1 TO 22,79
@19,5 SAY "[Y] SELECT/RETAIN TASK; [N] DO NOT SELECT/DELETE"
@19,55 SAY " TASK; [U] UNSURE"
@20,5 SAY "[D] MIL-STD-1388-1A;  [E] APPLICATION GUIDANCE"
@20,52 SAY "; [F] DSE GUIDANCE"
@21,5 SAY "[Q] QUIT; "
@21,20 SAY "ENTER CHOICE AND PRESS RETURN: ";
  GET mCHOICE PICTURE "!"
  READ
RETURN
```

LOGISTIC SUPPORT ANALYSIS (LSA)
DECISION SUPPORT SYSTEM
VERSION 1.1, 29 JULY 1989
USER'S MANUAL

SECTION I. GENERAL DESCRIPTION.

1. PURPOSE OF THE LSA DECISION SUPPORT SYSTEM (DSS).

a.   The purpose of this DSS is to aid logisticians and engineers in developing and tailoring Mil-Std-1388-1A, Logistic Support Analysis, tasks and subtasks to their individual program needs and to integrate the LSA effort into the overall system engineering effort.

b.   The purpose of this manual is to provide you information regarding the DSS's hardware requirements, installation and setup, and use.

2.   SYSTEM OPERATION.

a.   There are six main sections to this DSS.   They are all accessible from a main DSS menu that is generated when the DSS is run.   The six main sections are as follows.

(1)   A section that provides a general overview of the DSS itself, system engineering and LSA.

(2)   A section that allows you to review the various LSA tasks of Mil-Std-1388-1A, and their associated guidance. There are two sets of guidance associated with each LSA task: the ASD/EN Developmental Supportability Engineering (DSE) input/output guidance; and, individualized LSA task application guidance developed specifically for this DSS from a variety of sources which discusses LSA task interrelationships, LSA Record interrelationships, and LSA task/other specialty engineering task interrelationships.   A series of Task Section, Task, and Subtask menus allow you to tree through this section at you leisure and review any desired area in any order.

(3)   A section that generates an LSA task tailoring routine.   This section asks you for a program acquisition phase and program name to generate an individual database file for your program.   A directory option is available to help avoid overwriting an existing database file.   This section then leads you through a series of task tailoring

questions and allows you to select, not select, or be unsure
of each LSA task and subtask. The tailoring questions have
been designed to provoke thought on each tasks applicability
to your acquisition program. Additionally, you may access
the Mil-Std-1388-1A LSA task description, DSE guidance, and
Application Guidance for each task at each tailoring
question screen to receive additional information prior to
task selection. Finally, this section generates the task
applicability matrix by program phase (from Mil-Std-1388-1A)
to provide additional task selection guidance. This section
will allow you to tailor all of the LSA tasks and subtasks,
in sequence. However, if you are unable to finish this
section in one sitting, and must quit the DSS your work is
not lost. All work is saved on the database file named by
you earlier in this section. The next section of the DSS
allows you to review and update your task selections.

(4) A section that allows you to review, update, or
complete the LSA task tailoring initiated in the task
selection section is available. The section allows you to
obtain a directory of all program database files, and enter
the name of the database file you would like to update.
This task provides the same task tailoring questions,
additional guidance and task selection options as the task
selection section. However, this section allows you to
access each of the LSA tasks individually through a series
of menus to make review and update less cumbersome.
Additionally, massages are generated for each LSA subtask
stating whether the subtask has been previously selected,
not selected, or marked unsure. As in the task selection
section your work is not lost when you quit, but is saved on
the database file you named earlier in this section.

(5) This section allows you to obtain either a
screen listing or printed copy of the LSA tasks and subtasks
selected for your program. The section allows you to obtain
a directory of all program database files, and enter the
name of the database file you would like to review. You may
obtain either a screen list or printed copy of: (a) all
tasks and their status; (b) only selected tasks; or, (c)
only tasks you are unsure of.

(6) This section allows you to review LSA Lessons
Learned provided by the Acquisition Logistics Division
(current as of July 1988). They are in the same format and
categories as the ALD LSA Lessons Learned Bulletin. The
individual Lessons Learned are provided on a separate data
disk which must be in the computer's A: disk drive to be
read.

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3. SYSTEM CONFIGURATION.

a. The DSS has been programmed entirely in dBase III PLUS and requires dBase III PLUS to be resident on your computer in order to run.

b. The DSS requires the user to have at least the following hardware and software.

(1) IBM XT or AT compatible computer with at least 256K or Random Access Memory (RAM), a hard disk drive, and a floppy disk drive. The computer should have at least 2 megabytes of disk storage space on hard drive to be able to adequately hold a copy of dBase III PLUS and this DSS. The DSS, with the exception of the LSA Lessons Learned, will be stored on your computer.

(2) The computer must have installed MS-DOS 3.2 or higher.

(3) The computer must also have installed dBase III PLUS. dBase III PLUS should be installed on the computer's hard drive and preferable in a separate directory (named DBASE3P).

4. SYSTEM ORGANIZATION.

a. There are a number of program files, database files, form files, text files and index files which comprise this DSS. There purpose, and function will be described briefly here.

(1) Program Files. These are the DSS files with a ".PRG" extension. They are the heart of the DSS and contain all of the commands and operations required to implement the DSS. They have been name logically as follows.

(a) MAIN.PRG. This program file initialize the DSS's operating environment, generates the main DSS menu and allows you to access the various sections of the DSS.

(b) GENERAL.PRG. This program file contains the DSS general overview and use section.

(c) REVTASK.PRG, and REVTASK1.PRG through REVTASK5.PRG. These program files implement the section of the DSS that allows you to review each of the Mil-Std-1388-1A LSA task descriptions, DSE guidance and Application Guidance available for each LSA task.

(d) SELECT.PRG. This program file implements
the task tailoring section of the DSS and allows the user to
select the individual LSA tasks and subtask for his program.

(d) REVUP.PRG, and REVUP1.PRG through
REVUP501.PRG. These program files allow the user to review
and update his LSA task selections from the task selection
section of the DSS.

(e) PRINTIT.PRG. This program file allows the
user to obtain either a printed copy or screen listing of
the LSA tasks and subtasks, and their status for his
program.

(f) LLEARN.PRG, and LLSCRN1.PRG through
LLSCRN7.PRG. These program files allow the user to review
the LSA Lessons Learned from the LSA Lessons Learned disk.

(g) Q1011.PRG through Q5016.PRG. These
program files contain the LSA task tailoring questions, Mil-
Std-1388-1A task applicability matrix and task selection
status messages. These programs are called by SELECT.PRG,
REVUP101 through REVUP501.

(h) G101-1.PRG through G501-1.PRG. These
program files contain the Application Guidance for each Mil-
Std-1388-1A LSA task. These files are accessed by REVUP,
SELECT, and REVTASK program files.

(i) D101-1.PRG through D501-1.PRG. These
program files contain the DSE input/output guidance for each
Mil-Std-1388-1A LSA task. These files are accessed by
REVUP, SELECT, and REVTASK program files.

(j) M101-1.PRG through M501-1.PRG. These
program files contain the Mil-Std-1388-1A LSA task
descriptions. These files are accessed by REVUP, SELECT,
and REVTASK program files.

(2) Database files. There is only one database
file, TASKS1.DBF. It contains the master copy of all the
Mil-Std-1388-1A LSA tasks and subtasks, and their status.
Additionally, it contains a data record to store the
program's acquisition phase. This database file is used as
a template to create the user's separate database files.

(3) Form files. There is one form file,
PRINTIT.FRM, it contains the formate and content information
required to print hard copies of the LSA task selection and
status. It is called by PRINTIT.PRG.

(4)   Text files.   There is one text (.TXT) file for each LSA Lesson Learned.   Text files simply contain ASCII characters in a standard format that is accessible by multiple systems.

(5)   Index files.   There is one index file, TASKS1.NDX, which is used to sort the TASKS1.DBF and user named data base into the appropriate order (by LSA task and subtask) for use and printing.

5.   PERFORMANCE.

a.   The DSS operates entirely through the use of menu screens to accept user input to access the various options available and perform required operations.   The DSS accepts user input in either all upper or lower case, or a combination thereof.   The DSS requires you to press the <enter> key after all input entries (except at "PRESS ANY KEY TO CONTINUE" statements).   If you make a mistake entering input simply retype the correct entry.   DO NOT ATTEMPT TO USE THE BACKSPACE KEY.

CAUTION·   Be extremely careful when entering program names. Be sure to include the ".DBF" extension.   Failure to do this will cause the DSS to "crash."

6.   DSS INSTALLATION PROCEDURES.

a.   Both dBase III PLUS and this DSS will be installed on your hard drive.   Additionally, MS-DOS 3.2 or higher is required to run this system.

b.   Follow the following instructions to install Dbase III Plus and this DSS.   Note small case letter indicate instructions, upper case letters indicate what to type, brackets <> indicate a key on the computer's keypad to press.

(a)   turn on and boot up your computer.   Get to the MS-DOS dot prompt at the C: (hard disk) drive.   Then perform the following.

Step 1:   type MD DBASE3P <return>

Step 2:   type CD DBASE3P <return>

Note: Follow the dBase III PLUS installation instructions to load and install dBase III PLUS on this directory.   Copy the MORE.COM MS-DOS command file to this directory.   Also change the CONFIG.SYS file on you MS-DOS to include the following:

```
            BUFFERS=25
            FILES=25
```

(This will allow dBASE III PLUS to open sufficient numbers
of files to run the DSS.)

Step 3:   type MD DSS <return>

Step 4:   type CD DSS <return>

Step 5:   copy each of the LSA DSS Disks (#1,#2,#3,
and #4)
                to this directory by placing the appropriate
disk
                in the A: drive and typing

                COPY A:*.*   C:\DBASE3P\DSS <return>

                Note: you do not need to copy the LSA
Lessons
                Learned to your hard drive since the DSS
will
                look for them on the A: (floppy) drive.

This ends the installation procedure.

7.   DSS STARTUP AND OPERATION.

     a.   After completing the installation procedures above
the startup of the DSS is quite simple.   A batch file is
located on the LSA Lessons Learned disk which may be copied
to your main directory on the C: (hard disk) drive by typing
the following

          type COPY A:LSADSS.BAT C:

     The LSADSS.BAT file contains the following commands.

          CD C:\DBASE3P\DSS
          PATH=C:\DBASE3P
          DBASE3P

     b.   To start the DSS, after copying the batch file
above do the following:

Step 1:   from the main directory on the C: (hard disk) drive
(where the LSADSS.BAT file is located):

          type LSADSS <return>

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```

Step 2:  typing LSADSS will take you to the proper directory
and start dBase III PLUS.  Once dBASE III PLUS is running
you will see the dbase III PLUS introductory screen with
copywrite legend, site license, etc.  To start the DSS from
here, perform the following:


          type <return>
          type <esc>
          type DO MAIN <return>  (Note: you should be at a
dot prompt in Dbase III PLUS when this is typed.)


     c .  OPERATION.  Congratulations! you have entered the
DSS, simply follow the instructions on the menu's generated
to use the DSS.


          (1)   The DSS accepts user input in either all
upper or lower case, or a combination thereof.  The DSS
requires you to press the <enter> key after all input
entries (except at "PRESS ANY KEY TO CONTINUE" statements).
If you make a mistake entering input simply retype the
correct entry.   DO NOT ATTEMPT TO USE THE BACKSPACE KEY.
Entering a selection not available on the menu simply causes
the menu to be regenerated until an available option is
requested.

CAUTION:  Be extremely careful when entering program names.
Be sure to include the ".DBF" extension.  Failure to do this
will cause the DSS to "crash."

HINT:  If you want to store all of the program database
files on a floppy disk simply type "A:" in front of the
program name.  Don't forget to include the ".DBF" extension.

          (2)   Once you exit the DSS you will return the
dBase III PLUS dot prompt.  To quit dBase III PLUS type QUIT
<return> at the dot prompt.  You will leave dBase III PLUS
and be in the C:\DBASE3P\DSS subdirectory.  Typing CD \
<return> will return you to the main directory on the C:
(hard drive).

8.  UPDATES.

If you have any updates or recommendations to this DSS
please send your comments to: ALD/ERL, Wright-Patterson AFB
OH 45333 (AV 785-3754).

# Appendix R: Acronyms

| | |
|---|---|
| AFALC | Air Force Acquisition Logistics Center |
| AFLC | Air Force Logistics Command |
| AFLCP | Air Force Logistics Command Pamphlet |
| AFR | Air Force Regulation |
| AFSC | Air Force Systems Command |
| AL | Acquisition Logistics |
| ALD | Acquisition Logistics Division |
| AMC | Army Material Command |
| ASCII | American Standard Code for Information Interchange |
| ASD | Aeronautical Systems Division |
| CAMDES | Computer Assisted Methodology for Data Element Selection |
| DID | Data Item Description |
| DOD | Department of Defense |
| DODD | Department of Defense Directive |
| DPML | Deputy Program Manager for Logistics |
| DSE | Developmental Supportability Engineering |
| DSMC | Defense Systems Management College |
| DSS | Decision Support System |
| EN | Engineering |
| FMECA | Failure Modes, Effects, and Criticality Analysis |
| FSD | Full Scale Development |
| ILS | Integrated Logistics Support |
| LOGPARS | Logistics Planning and Requirement Simplification Systems |
| LSA | Logistic Support Analysis |
| LSAR | Logistic Support Analysis Record |
| Mil-Std | Military Standard |
| MS-DOS | Microsoft - Disk Operating System |
| OCR | Office of Corollary Responsibility |
| OPR | Office of Primary Responsibility |
| R&M | Reliability and Maintainability |
| RCM | Reliability Centered Maintenance |
| RLA | Repair Level Analysis |
| SEMS | Systems Engineering Master Schedule |
| SOW | Statement of Work |
| SPO | System Program Office |
| USMC | United States Marine Corps |

# Bibliography

Army Material Command (AMC). LOGPARS. Computer Program.
Lexington KY: Army Materiel Command, Material Readiness
Support Activity, 1989.

Blanchard, Benjamin S. Logistics Engineering and Management
(Third Edition). Englewood Cliffs NJ: Prentice-Hall
Inc., 1986.

Blanchard, Benjamin S., and Wolter J. Fabrycky. Systems
Engineering and Analysis. Englewood Cliffs NJ:
Prentice-Hall, Inc., 1981.

Chou, George Tse-der. dBase III PLUS Tips, Tricks and Traps.
Carmel IN: Que Corporation, 1987.

-----. dBase III Plus Handbook. Carmel IN: Que Corporation,
1986.

Columbia Research Corporation. CAMDES: Computer Assisted
Methodology for Data Element Selection. Computer
Program. Arlington VA: Columbia Research Corporation,
June 1988.

Defense Systems Management College (DSMC). Integrated
Logistics Support Guide. Fort Belvoir VA: DSMC,
May 1986a.

-----. System Engineering Management Guide (Second Edition).
Fort Belvoir VA: DSMC, May 1986b.

Department of the Air Force. USAF R&M 2000 Process.
Washington DC: HQ USAF, Office of Special Assistant for
R&M, October 1988a.

-----. Developmental Supportability Engineering: The
Systems Engineering Perspective. Wright-Patterson AFB
OH: HQ ASD, August 1988b.

-----. Air Force Logistics Support Analysis Primer. AFLCP
800-17. Wright-Patterson AFB OH: HQ AFLC, 20 May 1988c.

-----. Acquisition Management: Acquisition Logistics
Management. AFLC/AFSC Pamphlet 800-34. Wright-Patterson
AFB OH: HQ AFLC, 13 April 1987.

-----. Integrated Logistics Support (ILS) Program.
AFR 800-8. Washington DC: HQ USAF, 25 June 86.

Department of Defense (DOD). Logistics Support Analysis.
Mil-Std-1388-1A, Notice 1. Washington DC: DOD,
9 February 1988.

------. Maintainability Program for Systems and Equipment.
Mil-Std-470A, Notice 1. Washington DC: DOD,
26 August 1987.

------. Reliability Program for Systems and Equipment
Development and Production. Mil-Std-785B, Notice 1.
Washington DC: DOD, 3 July 1986a.

------. DOD Requirements for a Logistics Support Analysis
Record. Mil-Std-1388-2A, Notice 1. Washington DC:
DOD, 14 February 1986b.

------. Parts Control Program. Mil-Std-965A. Washington DC:
DOD, 13 December 1985a.

------. Reliability-Centered Maintenance for Aircraft,
Engines and Equipment. Mil-Std-1843. Washington DC:
DOD, 8 February 1985b.

------. Procedures for Performing a Failure Mode Effects and
Criticality Analysis. Mil-Std-1629A, Notice 2.
Washington DC: DOD, 28 November 1984a.

------. Human Engineering Requirements for Military Systems,
Equipment and Facilities. Mil-H-46855B, Amendment 2.
Washington DC: DOD, 5 April 1984b.

------. System Safety Program Requirements. Mil-Std-882B.
Washington DC: DOD, 30 March 1984c.

------. Acquisition and Management of Integrated Logistics
Support for Systems and Equipment. DOD Directive
5000.39. Washington DC: DOD, 17 November 1983.

------. Levels of Repair. Mil-Std-1390, Notice 1.
Washington DC: DOD, 19 February 1982.

------. Data Item Description: Users Manual (Information
Systems. DI-M-30421. Washington DC: DOD,
27 August 1975.

Department of the Navy. Logistic Support Analysis
Implementation Procedures: Final Report,
June 1984 - January 1985. Contract N00167-84-D-0039.
Washington DC: Office of the Chief of Naval
Operations, January 1985 (AD-A150544).

Dunbar, Captain Paul D. <u>A Computer-Based Decision Support System for Tailoring Logistics Support Analysis (LSA) Contract Requirements</u>. MS Thesis, AFIT/GLM/LSY/88S-17. School of Systems and Logistics, Air Force Institute of Technology (AU), Wright-Patterson AFB OH, September 1988 (AD-A202631).

Jones, James V. <u>Integrated Logistics Support Handbook</u>. Blue Ridge Summit PA: TAB Books Inc., 1987.

Keen, Peter G.W., and Michael S. Scott Morton. <u>Decision Support Systems: An Organizational Perspective</u>. Reading PA: Addison-Wesley Publishing Company, 1978.

Knecht, Ken. <u>Advanced dBASE III Plus</u>. Glenview IL: Scott, Foresman and Company, 1988.

Liskin, Miriam. <u>Advanced dBase III PLUS Programming and Techniques</u>. Berkley CA: Osborne McGraw-Hill, 1987.

McIlvaine, Paul J. "Defense Needs More System Engineering," <u>Program Manager, 16</u>: 24-29 (May-Jun 87).

Pierce, Captain Robert A. <u>Tailoring the Tasks of Logistics Support Analysis (LSA)</u>. MS Thesis, AFIT/GLM/LSQ/85S-64. School of Systems and Logistics, Air Force Institute of Technology (AU), Wright-Patterson AFB OH, September 1985 (AD-A161681).

United States Marine Corps (USMC). <u>United States Marine Corps Statement of Work Tailoring Program</u>. Computer Program. Washington DC: United States Marine Corps, June 1988.

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This thesis involves the development of a computer based Decision Support System (DSS) to assist in selecting the Logistic Support Analysis (LSA) tasks of Mil-Std-1388-1A as part of the system engineering process.

There are six main features to the DSS: (1) a general overview of the DSS, LSA, and system engineering; (2) a review of the Mil-Std-1388-1A LSA tasks; (3) an LSA task selection section; (4) an LSA task selection review and update section; (5) an LSA task selection print section; and, (6) an LSA Lessons Learned review section. The user has access to the Mil-Std-1388-1A LSA task descriptions and specific LSA task application guidance for each LSA task. The task application guidance provides information relating to the LSA task's use, interfaces with LSA tasks, LSA Records, and specific engineering tasks. The DSS is programmed entirely in dBase III PLUS, and requires dBase III PLUS in order to be run.

The DSS was developed using a four step approach. The first step entailed a literature review of existing LSA and system engineering literature to identify the pertinent LSA task and system engineering interfaces. The second step involved developing and programming the initial DSS. In the third step system engineering and logistics experts were identified to review the DSS and provide comments, recommendations and expert knowledge. A Delphi technique was used to review the DSS, and the DSS was updated accordingly. In the fourth step, the experts reviewed the final DSS and completed a questionnaire documenting their final opinions regarding the DSS.

The expert review indicated that the DSS is more helpful in developing LSA requirements that the current guidance documents, and the DSS provides an increased understanding of the interrelationships between LSA and other engineering tasks.